P.V.

Vol. I

TRANSCRIPT OF RECORD

Supreme Court of the United States

OCTOBER TERM, 1938

No. 76

THE MAYTAG COMPANY, PETITIONER,

vs.

HURLEY MACHINE COMPANY AND ELECTRIC HOUSEHOLD UTILITIES CORPORATION

No. 77

THE MAYTAG COMPANY, PETITIONER,

vs.

EASY WASHING MACHINE CORPORATION

ON WRITS OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SECOND CIRCUIT

PETITION FOR CERTIORARI FILED JUNE 2, 1938.

CERTIORARI GRANTED FEBRUARY 6, 1939.

INDEX.

(MAYTAG COMPANY v. EASY WASHING MACHINE CORPORATION.)

Bill of Complaint 1
Order for a Bill of Particulars 12
Plaintiff's Bill of Particulars 14
Answer 15
Amendment to Answer 26
Stipulation re Use of Testimony and Exhibits from Brooklyn Edison Case 28
Supplemental Bill of Complaint 29
Copy of Decree in Brooklyn Edison Case Annexed 36
Amendment to Supplemental Bill of Complaint 39
Answer to Amended Supplemental Bill of Complaint 41
Amendment to Original Bill of Complaint 44
Copy of Disclaimer Annexed 46
Stipulation as to Certain Testimony in Brooklyn Edison Case 49

(MAYTAG COMPANY v. HURLEY MACHINE COMPANY AND ELECTRIC HOUSEHOLD UTILITIES CORPORATION.)

Bill of Complaint 51
Copy of Opinion Brooklyn Edison Case Annexed 68
Copy of Decree in Brooklyn Edison Case Annexed 115
Order Granting Leave to File Amendment to Bill of Complaint 118
Amendment to Bill of Complaint 120
Answer 124

PAGE

Second Amendment to Bill of Complaint .. 136
Copy of Disclaimer Annexed 138
Stipulation re Use of Testimony and Exhibits from Brooklyn Edison Case 141
Narrative Statement of the Evidence 143

WITNESSES FOR PLAINTIFF.

Walter Bones:
Direct 148
Cross 166

James A. McCoy:
Direct 168
Cross 170
Re-direct 171

Ray L. Ryan:
Direct 172
Cross 191
Re-direct 204
Re-cross 213
Re-direct 221
Re-cross 222

Gladys M. Ryan:
Direct 223
Cross 228

Sherman M. Weeks:
Direct 230
Cross 239
Re-direct 242
Re-cross 243

Esther S. Ryan:
Direct 244
Cross 246
Re-direct 247

PAGE

Chester F. Grober:
Direct 248
Cross 255
Re-direct 263

Oscar George Beushausen:
Direct 265
Cross 275
Re-direct 281

William W. Winger:
Direct 282
Cross 284

Lucien I. Yeomans:
Direct 287
Recalled:
Direct 342

Winton G. Wilks:
Direct 321

Fred L. Maytag:
Direct 329
Cross 334

WITNESSES FOR DEFENDANTS.

Thomas W. Behan:
Direct 347
Cross 368
Re-direct 380
Re-cross 386
Re-direct 389
Re-cross 390
Re-direct 391
Re-cross 391

PAGE

George L. Davis:
Direct 392
Cross 399
Re-direct 401
Re-cross 405
Re-direct 408
Re-cross 411
Re-direct 411
Re-cross 412
Recalled:
Direct 413

Robert D. Quinn:
Direct 417
Cross 422
Re-direct 424
Re-cross 425
Re-direct 425
Re-cross 426
Re-direct 427
Re-cross 430

William Green:
Direct 430

Vernon J. Wooster:
Direct 431

Herman W. Doughty:
Direct 431
Cross 457
Re-direct 463
Re-cross 465
Re-direct 465
Re-cross 466

Laura Wensley:
Direct 468
Cross 470

PAGE

Watson A. Osgood:
Direct 475
Cross 482

William S. Miller:
Direct 487
Cross 490
Re-direct 496
Re-cross 497

John N. Lint:
Direct 498
Cross 501
Re-direct 503
Re-cross 505
Re-direct 505
Re-cross 505

Charles F. Jenkins:
Direct 505
Cross 507
Re-direct 508

Walter H. Barnhart:
Direct 508
Cross 510
Re-direct 510

Verne M. Barnhart:
Direct 511
Cross 511

Harry E. Barnhart:
Direct 512
Cross 519
Re-direct 520
Re-cross 522
Re-direct 523

PAGE

Mary L. Carr:
Direct 523
Cross 525
Re-direct 527
Re-cross 527

George A. Haag:
Direct 528
Cross 534
Re-direct 544
Re-cross 552
Re-direct 553
Re-cross 554
Re-direct 554
Re-cross 554

WITNESSES FOR PLAINTIFF IN REBUTTAL.

George L. Miller:
Direct 559
Cross 571

William James Elliott:
Direct 586
Cross 590
Re-direct 593

Joe Stephen:
Direct 594
Cross 596
Re-direct 599
Re-cross 600

David L. Mooar:
Direct 601
Cross 611
Recalled:
Direct 614

PAGE

Roy A. Bradt:
Direct 615

Charles V. Thornton:
Direct 635

Frederick F. Mason:
Direct 639
Cross 645

John E. Herbst:
Direct 647
Cross 653

PLAINTIFF'S EXHIBITS.

	Offd. Page	Ptd. Page
1—Snyder patent No. 1,866,779 ..	148	657
2—Certified copy of Disclaimer in Snyder patent No. 1,866,779 ..	148	671
3—Easy Washing Machine	171	
3A—Drawing of Easy Washing Machine	300	675
4—Thor Washing Machine	171	
4A—Drawing of Thor Washing Machine	300	676
5—Charts of Old Type Washing Machine	152	677
6—Maytag Peg Dolly Washing Machine	160	
7—Vacuum Cup Type Washing Machine	160	
8—Cylinder Type Washing Machine	160	
9—Maytag Early Gyrator Washing Machine	160	
9A—Drawing of Maytag Early Gyrator Washing Machine	300	698

	Offd. Page	Ptd. Page
10—Maytag Early High Center Post Gyrator Washing Machine	160	
10A—Drawing of Maytag Early High Center Post Gyrator Washing Machine	300	699
11—Maytag Round Tub Washing Machine	160	
11A—Drawing of Maytag Round Tub Washing Machine	300	700
12 (Iden.)—Maytag 1922 Circular Form 110	162	701
13 (Iden.)—Maytag 1922 Direction Sheet	162	
13A (Iden.)—Maytag 1932 Circular Form 528	162	703
14 (Iden.)—Maytag Direction Card	162	
15 (Iden.)—Three Maytag Direction Cards	162	
16 (Iden.)—Davis Form 1 Machine	166	
(In Evidence)	341	
17—Thor Circular of No. 32 Cylinder Washing Machine	171	705
18—Thor Circular of Agitator Washing Machine, Form 31-1	171	707
19—Thor Circular of Agitator Washing Machine, Form 32-119	171	709
20—Thor Circular of Agitator Washing Machine	171	710
21—Thor Circular of Agitator Washing Machine, Form 33-96	171	712
22—Thor Circular of Agitator Washing Machine, Form 30-8	171	713
23—Thor Circular of Agitator Washing Machine, Form 30-9	171	715
24—Thor Circular of Agitator Washing Machine, Form 33-65	171	717

	Offd. Page	Ptd. Page
25—Haag Rubboard Circular	171	718
26—Huber Bros. Catalog, pages 56, 57, 60, 61	171	719
27—The Hardware Trade, page 39, September 16, 1925	171	723
28—Dietz Rubboard Circular	171	724
29—The Hardware Trade, page 44, February 4, 1925	171	730
30—Photograph of 1900 Rubboard Hand Oscillating Machine	171	731
31—The Hardware Trade, page 35, October 15, 1924	171	732
32—Haag Circular of Nu-Way Electric Washing Machine	171	733
33—Haag Circular of Rubboard Washing Machine	171	735
34—Haag Circular of Rubboard Washing Machine	171	736
35—Voss Circular of Rubboard Washing Machine	171	738
36—Voss Circular of Rubboard Washing Machine	171	740
37—Voss Circular of Rubboard Washing Machine	171	744
38—Superior Leaflet of Sterling Rubboard Washing Machine ..	171	746
39—Superior Leaflet of Submarine Rubboard Washing Machine ..	171	747
40—King Circular of Rubboard Washing Machine	171	749
41—Page 3 of Circular of Bluffton Rubboard Washing Machine ..	171	753
42—Barlow & Selig Circular of Gyrator Washing Machine	171	759
43—Boss Circular of Old Type Washing Machines	171	763

	Offd. Page	Ptd. Page
44—Princess Circular of Rubboard Washing Machines	171	765
45—Cut of 1900 Rubboard Oscillating Machine	171	767
46—Sheet 2 of Drawing of Dietz Patent No. 824,529	171	768
47—Drawing of Davis Patent No. 1,240,826	171	769
47A—Sketch of Easy Washing Machine	171	770
48—Haag Rubboard Washing Machine	171	
48A—Haag Peg Dolly	171	
48B—Haag Rubboard	171	
48C—Haag Rubboard	171	
48D—Haag Metal Rubboard	171	
49—King Rubboard	171	
50 (Iden.)—Cuts of 1900 Rubboard—Form 1—Defendants' Exhibit 2A	302	
51—Easy Vacuum Cup Circular	323	771
51A—Easy Vacuum Cup Instruction Sheet and Letter to Wilks Bros.	323	774
51B—Easy Vacuum Cup Instruction Sheet	323	780
52—Easy Instruction Card	327	783
53—Easy Merchandizer Publication, September, 1930	327	785
54 (Iden.)—Findings of Fact and Conclusions of Law in Maytag v. Brooklyn Edison	341	
55—Photograph of 1900 Agitators	557	786
56—1900 Cataract Circular	557	787
57—Miller Patent No. 738,560	557	789
58—Miller Rubboard Circular	557	792

	Offd. Page	Ptd. Page
59—Haag Circular of New Haag Vortex Washing Machine	555	793
60—Haag Circular of Vortex Washing Machine	555	795
61—Haag ad of Vortex Washer in Hardware Age, September 16, 1926, page 32	555	797
62—Haag ad of Vortex Washer in Hardware Trade, February 4, 1925, page 45	555	798
63—Haag Catalog, pages 4, 7 and 10	556	799
168—Five drawings of The Maytag Company Corrugated Tub Machine and Dolly	558	802
169—Maytag Aluminum Tub Dolly Machine of 1915	558	
170—Maytag Model 70 Washing Machine	558	
170A—Maytag Flange Peg Washing Machine with Dolly	558	
170B—Maytag Vacuum Cup Dolly ..	558	
170C—Photograph of Maytag Model 70 with Flange Peg Dolly	558	807
170D—Photograph of Maytag Model 70 with Vacuum Cup Dolly ...	558	808
171—Miller Sketch of Maytag 1920 Wood Tub Machine	558	809
172—Maytag 1920 Wood Tub Machine	558	
172A—Three large wood blades for Maytag 1920 Wood Tub Machine	558	
173—Maytag 1921 Experimental Gyrator Machine	558	
174—Sketch by Elliott of Maytag 1920 Wood Tub Machine	558	810
175—Sketches by Joe Stephen of Maytag 1920 Wood Tub Machine ..	558	811

	Offd. Page	Ptd. Page
175A—Sketch by Joe Stephen of Maytag 1920 Wood Tub Machine ..	558	812
176—Sketch by Dave Mooar of Maytag 1920 Wood Tub Machine ..	558	814
177—Drawing by Mooar of K540 Sprocket Wheel	558	815
182 (Iden.)—Sketch by Bradt	558	
183—Sketch by Bradt	558	816
184—Inter - factory Communication From Howard F. Snyder to F. L. Maytag dated October 16, 1921	558	817
188—Drawing of Maytag Gyrator, December 23, 1921	558	818
209—Dremel patent No. 1,417,306, May 23, 1922	558	819
210—Two Photographs of Maytag Double-Tub Model 70 Machine with Flange Peg Dolly	558	832
211—Herbst Sketch	558	834
212—(a) Opinion of Examiner of Interferences in Unruh v. Snyder, dated October 12, 1928	558	835
(b) Decision of Board of Appeals, Patent Office, dated December 31, 1929	558	845
(c) Decision on Petition for Rehearing, dated January 31, 1930	558	851
(d) Certified Copy of Protest filed with the Patent Office after the Petition for Rehearing and Interference had been decided, dated June 19, 1931	558	853

DEFENDANTS' EXHIBITS.

	Offd. Page	Ptd. Page
A (Iden.)—Printed copy of record in The Maytag Company v. Brooklyn Edison Company, in 6 volumes	344	
B—Binder of Patents	347	
(Group 1)		
Hittel 61,067		855
Ferguson 83,145		857
Hermance 88,478		860
Covel 95,565		862
Dodge 95,573		864
Morse 106,853		866
Groat 113,762		868
Runkle 131,629		872
Crawford 266,975		875
Mears 443,778		879
Christman 444,421		883
Foster & Garrison 832,787		887
Mills 1,118,210		890
Coffield 1,131,466		899
Staley 1,155,107		904
Spaugy 1,227,335		908
Altorfer 1,227,733		912
Davis 1,240,826		918
Schneider 1,253,536		921
Ritz 1,393,969		926
Doughty & Davis 1,496,305		932
BRITISH		
Jardine 18,202		937
Hanna 19,027		942
Barnes 19,566		945
Davies 24,494		949

FRENCH

		Offd. Page	Ptd. Page
Henin	363,514		952
Versaille	398,798		962
Hershey	470,923		971

GERMAN

Muhlmann	62,444		983

(Group 2)

Haag	16,746 Re.		990
Marchand	273,569		996
Wright	456,370		999
Russell, *et al.*	530,854		1003
Smith	593,910		1005
Foster	907,766		1010
Phillippy	927,069		1013
Hoffman	1,157,222		1017
Lewis	1,262,962		1020
Wolcott	1,390,224		1026
Unruh	1,459,483		1030
Snyder	1,209,893		1034
Snyder	1,391,214		1039
Snyder	1,506,783		1042
Snyder	1,644,959		1046
Snyder	1,657,699		1055
Snyder	1,693,003		1061
Snyder	1,714,894		1064
Snyder	1,729,751		1067
Snyder	1,973,230		1072

C—Certified Copy of File Wrapper of Snyder Patent 1,866,779		347	1078
D (Iden.)—Certified Copy of File Wrapper of Snyder Patent 1,506,-783		347	

	Offd. Page	Ptd. Page
E—Depositions of	347	
Thomas W. Behan		347
George L. Davis		392
Robert D. Quinn		417
William Green		430
Vernon J. Wooster		431
Herman W. Doughty		431
2A—1900 Form 1 Machine. Illustrated in Davis Patent 1,240,826 and on page 7 of Deft's Exh. 10. (Supplanting Deft's Exh. 2, Behan Dep.)	351	
3—Davis Patent 1,240,826	351	918
4—1900 Form 4 Machine. Illustrated in Doughty & Davis Patent 1,496,305 and in Deft's Exhs. 10 and 18	355	
5—Doughty & Davis Patent 1,496,305	356	932
6—Davis Patent No. 1,748,442	358	1302
7—Behan's Sketch of Bottom Driven Overhead Agitator Machine	360	1308
8—Rough Model of Original Doughty & Davis Machine	363	
9—Sheaf of Papers re Original Development of Doughty & Davis Machine	368	1309
10—Copy of Circular Attached to Swinging Wringer License	391	1321
11—Pages 1 to 14, inc. of 1900 Tally Book re Doughty Machines	398	1328
12—Circular of 1900 Model 400 Agitator Washer	405	1343
13—Invoice of W. Lee Holmes, of two Form 4 Machines October 8, 1921	420	1344

	Offd. Page	Ptd. Page
14—Invoice to W. A. Osgood for three Form 4 Machines November 25, 1921	421	1345
15—Eight Blueprints of Details of Form 4 Machine	447	1346
16—Two Blueprints of Details of Form 4 Machine	447	
17—Blueprint of Assembly Drawing of Form 4 Machine	449	
18—Photograph of Form 4 Machine	449	1354
19—Leaf from Doughty's Personal Notebook Entitled "General Progress"	465	1355
101—Sales Contract, 1931	469	1389
102—Sales Contract, 1920	469	1391
103—1900 Form 3 Machine	470	
104—Conditional Sales Contracts Form 3 Washers (six sheets) 2/7/20—5/11/20	478	1392
105—Sales Slip Form 4 Machine	480	1395
H—Depositions of	523	
William S. Miller		487
John Lint		498
Charles F. Jenkins		505
Walter H. Barnhart		508
Verne M. Barnhart		511
Harry E. Barnhart		512
21—Miller Machine having Corrugated Interior	488	
22—Miller Machine having Smooth Side Walls and Corrugated Bottom	489	
23—Cancelled Check signed by Perry C. Miller to the Order of William S. Miller	489	

	Offd. Page	Ptd. Page
24—Sheaf of Checks signed by Harry E. Barnhart to the order of William S. Miller	490	
25—Design Patent No. 53,745 Issued to William S. Miller, August 26, 1919	490	1356
26—Cancelled Check Signed by Harry E. Barnhart to the order of Mrs. Mollie Opel	514	
27—Cancelled Check Signed by Harry E. Barnhart to the Order of Mrs. Lewis Bacon	515	
137—Drawing of Miller Machine, Deft's Exh. 21. (Objected to and withdrawn.)		
138—Drawing of Miller Machine, Deft's Exh. 22. (Objected to and withdrawn.)		
I—Deposition of Mary L. Carr	523	523
20—Hermance Machine	527	
81—Drawing of Defendant's Exhibit 20 (Hermance Machine)	528	1388
J—Deposition of George A. Haag	528	528
60—Haag Dasher	554	
61—Haag Circular. Cabinet Electric	554	1358
62—Haag Ledger Sheets	554	1366
63—Circular Haag "Nu-Way" Washer	554	1368
64—Haag Dealers' Price List	554	1370
65—Haag Circular "New Member in House of Haag"	554	1372
66—Haag Circular "Haag Eighty"	554	1376
67—Haag Vortex Dolly	554	
65—Haag Vortex Circular, Form M 134	555	1374

	Offd. Page	Ptd. Page
66—Haag Vortex Circular, Form M 100	555	1378
67—Haag Vortex Circular, Form M 131	555	1380
68—Haag Twin-Tub Circular, Form M 139	555	1382
69—Haag Vortex Circular, Form M 108	555	1384
70—Haag Eighty Circular, Form M 119, Model 80-B	555	1386
71—Haag Catalog— "A Complete Line of Quality Built Washers"	555	
72—Haag Catalog— "Builders of Fine Washing Machines Since 1912"	555	
1—Maytag Circular of Model F Machine	556	1300
L—Cooper Patent 83,764	556	1291
M (Iden.)—Petition for Rehearing in the Maytag Company v. Brooklyn Edison Company	557	
147—Papers in Snyder-Unruh Interference	656	1396

DEFENDANT'S CROSS EXHIBITS.

W—Haag Circular "Peerless Brand"	248	1293
X—Illustrations of Dollies	248	1294
Y—Haag Circular "Haag Nu-Way Twin"	248	1295
Z—Pages from Luthy Catalog (pages 53, 54, 55)	248	1297

(MAYTAG COMPANY v. EASY WASHING MACHINE CORPORATION.)

	PAGE
Final Decree	1410
Findings of Fact and Conclusions of Law	1412
Notice of Lodgment of Narrative Statement of the Evidence	1415
Order Approving Praecipe and Amending Narrative Statement of the Evidence	1417
Order Approving Narrative Statement of the Evidence	1419
Petition for Appeal	1420
Order Allowing Appeal	1421
Assignment of Errors	1422
Bond for Costs	1424
Citation	1426
Praecipe	1428

(MAYTAG COMPANY v. HURLEY MACHINE COMPANY AND ELECTRIC HOUSEHOLD UTILITIES CORPORATION.)

Final Decree	1433
Findings of Fact and Conclusions of Law	1435
Notice of Lodgment of Narrative Statement of the Evidence	1438
Order Approving Praecipe and Amending Narrative Statement of the Evidence	1440
Order Approving Narrative Statement of the Evidence	1442
Petition for Appeal	1443
Order Allowing Appeal	1444
Assignment of Errors	1445
Bond for Costs	1447
Citation	1449
Praecipe	1451
Stipulation as to Correctness of Record	1456
Clerk's Certificate	1457

Proceedings in U. S. C. C. A., Second Circuit 1458
Opinion, Manton, J. 1458
Judgment—The Maytag Co. v. Easy Washing Machine Corporation 1461
Judgment—The Maytag Co. v. Hurley Machine Co. and Electric Household Utilities Corporation 1462
Petition for rehearing (omitted in printing) 1464
Orders denying petition for rehearing 1479
Clerk's certificate 1480
Orders allowing certiorari 1481

United States District Court

SOUTHERN DISTRICT OF NEW YORK.

1

THE MAYTAG COMPANY, a corporation, Plaintiff, vs. EASY WASHING MACHINE CORPORATION, Defendant.	In Equity No. 75-202.

2

Bill of Complaint (Maytag Company v. Easy Washing Machine Corporation).

(Filed April 3, 1933.)

TO THE HONORABLE, THE JUDGES OF SAID COURT:

The Maytag Company, a corporation organized and existing under and by virtue of the laws of the State of Delaware, having an office and place of business in Newton, Jasper County, Iowa, a citizen, inhabitant and resident of the 3
State of Delaware, complains against Easy Washing Machine Corporation, a corporation organized and existing under and by virtue of the laws of the State of Delaware as Syracuse Washing Machine Corporation, which name was changed to Easy Washing Machine Corporation, a citizen, inhabitant and resident of the State of Delaware, having an office and a regular and established place of business in the City of New York, State of New York, within the Southern District of New York, where it has committed acts of infringement as herein complained of, and plaintiff says:

I.

Howard F. Snyder being the first, original and sole inventor of a certain new and useful washing machine, not known or used by others in this country before his invention thereof, and not patented or described in any printed publication in this or any foreign country before his
5 invention or discovery thereof, or more than two years prior to his application for patent thereon in the United States, and not patented in a country foreign to the United States on an application filed by him or his legal representatives or assigns, more than twelve months before his application for patent in the United States, and not in public use or on sale in the United States for more than two years prior to his application, and not abandoned, and the said Howard F. Snyder having made due application in the United States Patent Office on
6 June 14, 1922, Serial No. 568,158, for a patent for said invention, and having complied in all respects with the requirements of law of the United States for the grant of Letters Patent for said invention, and said application having been duly prosecuted, and said Howard F. Snyder having, by proper assignment in writing, duly executed and delivered on the 25th day of June, 1925, and recorded in the United States Patent Office on the 1st day of July, 1925, in Liber R-124, at page 403, of Transfers of Patents, sold, assigned and transferred unto The Maytag Company, an Iowa Corporation, all

right, title and interest in, to and under said invention, said application for patent thereof, and the Letters Patent therefor, and the said The Maytag Company, the Iowa corporation, having thereafter, by proper assignment in writing duly executed and delivered on or about the 14th day of July, 1926, and recorded in the United States Patent Office on the 4th day of August, 1926; in Liber V-127, at page 161, of Transfers of Patents, sold, assigned and transferred unto the plaintiff The Maytag Company, a Delaware corporation, all right, title and interest in, to and under said invention, said application for patent thereon, and the Letters Patent therefor, which said assignments or duly certified copies thereof, are ready here in court to be produced, there was on the 12th day of July, 1932, duly issued to plaintiff, as the assignee by mesne assignments of said Howard F. Snyder, Letters Patent of the United States No. 1,866,779, duly sealed and countersigned and executed in due form of law, whereby there was vested in the plaintiff, its successors and assigns, for the term of seventeen (17) years from and after the 12th day of July, 1932, the exclusive right to make, use and sell said invention throughout the United States and the territories thereof, the original of said patent, or a duly certified copy thereof being ready here in court to be produced, and a printed Patent Office copy of the specifications, claims and drawings thereof are filed herewith as "Plaintiff's Exhibit, Plaintiff's Patent."

II.

Plaintiff states that on or about September 8, 1926, the United States Patent Office declared an interference between the then pending said Howard F. Snyder application and an application of Cornelius C. Unruh, filed June 18, 1925, Serial No. 38,109, for reissue of his patent No. 1,459,483, dated June 19, 1923. This interference was vigorously contested from the time of its declaration up to and including November 21, 1931, when Unruh's petition for rehearing was denied by the United States Court of Customs and Patent Appeals. Commencing with the time when it appeared that Unruh was much later in date of invention than Snyder, Unruh filed motions to dissolve the interference on the grounds of indefiniteness, lack of patentability, and scope of various of the claims now appearing in the Snyder patent, all of which were decided adversely to him as to claims now appearing in the Snyder patent.

During the course of said interference proceedings in the United States Patent Office, prior patents, publications (United States and foreign), and other prior art were all searched, examined and called to the attention of the United States Patent Office, and fully argued before it in an attempt to prevent the issuance of the Snyder patent with such claims as now appear therein, and notwithstanding this, various tribunals of the Patent Office held that Snyder was entitled to these claims as covering his invention, which holding was affirmed by the

Court of Customs and Patent Appeals in its decision of June 1, 1931. Notwithstanding plaintiff made every possible effort to have the interference proceedings brought to an early termination and have the said Snyder patent issue at the earliest possible date, the various motions, contests and appeals made by said Unruh prevented a final decision in the Court of Customs and Patent Appeals until November 20, 1931, and prevented and delayed the issuance of the said patent to Snyder.

From the date when the Court of Customs and Patent Appeals denied said Unruh's petition for rehearing up to and including the allowance of said Snyder application on June 11, 1932, Snyder vigorously prosecuted his application to allowance, and immediately upon being notified of the allowance paid the final fee, with the result that the patent in suit was issued to plaintiff, as assignee on July 12, 1932.

Plaintiff having commenced early in 1922 the extensive sale and distribution of washing machines made under and in accordance with the Snyder application, which resulted in the patent in suit, washing machine manufacturers, including defendant, generally became cognizant of the fact that this was a distinctively new product of the plaintiff, and it was only after plaintiff's product had been widely sold and distributed for a number of years that any washing machine manufacturer commenced the manufacture and sale of machines like those against which the charge of infringement is asserted.

Washing machine manufacturers, including de-

fendant, also were conversant with the pendency of the said interference between Unruh and Snyder, were constantly advised as to its progress, and were advised publicly concerning it shortly after rendition of the decision of the Court of Customs and Patent Appeals on June 1, 1931.

Said interference proceedings were unwarrantably inspired, continued and prolonged, and
17 the Snyder patent prevented from earlier issuance, by competitors of the plaintiff who were manufacturing and selling machines embodying the invention disclosed in and covered by the claims of the Snyder patent in suit, with the purpose of enabling such competitors to continue the manufacture and sale of their washing machines during the pendency of said application and interference proceedings without interference from plaintiff, and compelled plaintiff to expend large sums of money in contesting said interference and finally and definitely establish-
18 ing its right to the issuance of the Snyder patent by the United States Patent Office.

The manufacture and sale of washing machines by defendant and other manufacturers, aside from the plaintiff, utilizing the invention disclosed and claimed in the patent in suit, was commenced subsequent to the time when said Unruh-Snyder interference was declared, and the delay caused by this interference has enabled various manufacturers of washing machines, including defendant, to reap large profits and benefits from the sale of such washing machines, while plaintiff was powerless to prevent this

inequitable invasion of its rights, due to the continued pendency of the proceedings at the Patent Office.

Plaintiff is informed and believes, that washing machine manufacturers competing with plaintiff in the sale of machines utilizing the Snyder invention, including defendant, collaborated in an attempt to prevent the issuance of the Snyder patent in suit, and thereby have prevented and delayed its earlier issuance.

III.

Plaintiff states that by virtue of the premises it became, ever since has been, and is now the sole and exclusive owner of said invention and said Letters Patent No. 1,866,779, and of all rights and privileges granted and secured, or intended to be granted and secured thereby, including all rights of recovery for past infringement thereof. Since plaintiff became the owner of said invention and the application for Letters Patent therefor, out of which the said patent No. 1,866,779 has now issued, it has invested and expended large sums of money and been to great trouble and expense in and about said invention for the purpose of introducing the same into use, and making the same profitable and useful to both plaintiff and the public; plaintiff alleges that the said washing machine utilizing said invention embodied a radically new and distinctive construction and principle of operation, and plaintiff enjoyed an exclusive market in the sale thereof for several years following its introduction

by plaintiff commencing early in 1922; said invention is of great commercial value and practical utility, and of great benefit and advantage to plaintiff and the public, and if plaintiff can receive lawful protection against infringement of said Letters Patent, they will be of great value to it and large profits will accrue to it therefrom.

The plaintiff is equipped and maintains a large
23 and extensive plant and factory and a large force of employes for the making of said washing machines, and has the necessary facilities for supplying all demands for said invention made under and in accordance with said patent promptly and at a fair and reasonable cost and price to the public.

IV.

Plaintiff has caused to be marked, since the issuance of the said Snyder patent, all of its de-
24 vices made under said Snyder patent with the patent markings required by law. Defendant has been duly notified of its infringement of said patent, plaintiff's ownership thereof and rights thereunder, and has been requested to desist from infringement thereof, but has refused so to do, and has continued, after notice, to make, sell and use said infringing washing machines.

V.

Defendant well knowing the premises and in violation of the rights of plaintiff, after notice of said patent, plaintiff's exclusive rights thereun-

der and its infringement thereof, without authority under said Letters Patent of otherwise, since the issue thereof and acquirement of plaintiff's exclusive rights thereunder, and prior to the commencement of this suit, and within six years within the Southern District of New York, and elsewhere in the United States and the territories thereof, has wrongfully and wantonly and continuously infringed said Letters Patent No. 1,886,779, and made, sold and used washing machines embodying the said invention on a large and growing scale, and is still so doing, and is threatening so to do in the immediate future, and during the term of said Letters Patent. Though requested to desist from said infringement, defendant refuses so to do, whereby plaintiff has been, is still being and will be, so long as such infringement continues, greatly and irreparably damaged and injured and deprived of the profits which it would otherwise make under said Letters Patent, and defendant has made and is making by such infringement, large and continuing profits which belong to plaintiff, the amount of which profits plaintiff cannot ascertain except by the accounting herein prayed. Defendant's acts are also having the effect of inducing and causing others to disregard plaintiff's rights and to infringe its said patent.

VI.

Forasmuch as plaintiff can have no adequate relief except in this court of equity, and as the proceedings of defendant are contrary to equity

and to the end, therefore, that defendant may show, if it can, why plaintiff should not have the relief hereby prayed, and may without oath, answer under oath being hereby expressly waived, to the best and utmost of its knowledge, remembrance, information and belief, full, true, direct and perfect answer make to all and singular the matters and things hereinbefore stated and charged, as fully and particularly as if separately and severally interrogated as to each and every of said matters, plaintiff files this its bill of complaint.

WHEREFORE, plaintiff prays a preliminary injunction pending this suit and a perpetual injunction restraining and enjoining defendant, its officers, agents, servants, employees and attorneys, and those in active concert or participating with it from making, selling or using said patented invention, or any part thereof, or offering so to do, or aiding or abetting or in any way inducing or contributing to infringement of said patent No. 1,866,779, dated July 12, 1932, and from in any way advertising said washing machines herein complained of.

Plaintiff further prays that said patent No. 1,866,779, dated July 12, 1932, may be declared to be valid, and plaintiff to be the sole and lawful owner thereof and of all rights thereto and thereunder.

Plaintiff further prays that this cause may be referred to a master to take and state an accounting of profits and damages accruing by reason of said infringement, and that said master

may be given all the powers conferred upon masters by law and the rules in equity, and that plaintiff may have judgment for the profits, damages, gains, savings, advantages and benefits so found and all costs of this suit, including plaintiff's disbursements, and that the damages awarded may be increased three-fold in view of the wanton character of this infringement, and that plaintiff may have such other and further relief as equity may require.

THE MAYTAG COMPANY,
By E. H. MAYTAG.

JOHN F. RYAN,
Solicitor and of Counsel for Plaintiff.

WALLACE R. LANE,
of Counsel.

State of Illinois, }
County of Cook, } ss.:

E. H. MAYTAG, being first duly sworn on oath states that he is the President of The Maytag Company, a Delaware corporation, plaintiff herein; that he has read the foregoing bill of complaint and knows the contents thereof of his own knowledge, and that the same is true, except as to those matters stated to be on information and belief, and as to those matters he believes them to be true; that he verily believes that said Howard F. Snyder was the original, first and

sole inventor of said washing machine, and that the title to said patent is in plaintiff.

E. H. MAYTAG.

Subscribed and sworn to before me at Chicago, State of Illinois, this 18th day of February, 1933.

HENRY G. HARDY,
Notary Public,
My commission expires April 21, 1934.

35 (Seal)

Order for Bill of Particulars (Maytag Company v. Easy Washing Machine Corporation).

(Filed April 29, 1933.)

UNITED STATES DISTRICT COURT,

SOUTHERN DISTRICT OF NEW YORK.

THE MAYTAG COMPANY, Plaintiff, v. EASY WASHING MACHINE CORPORATION, Defendant.	Equity No. 75-202.

36

This cause came on at this Term of Court, upon defendant's application for the entry of an order directing plaintiff to file a bill of particulars herein, and thereupon upon consideration of the annexed consent, it is

ORDERED, that the plaintiff serve upon the solicitors for the defendant within thirty (30)

days from the date hereof a Bill of Particulars setting forth particularly and specifically the following:

1. The claim or claims of the Howard F. Snyder patent, No. 1,866,779, alleged in Paragraph V of the Bill of Complaint to have been infringed, upon which plaintiff will rely at the trial of this cause in support of its allegation of infringement; and

2. The particular type or style of the machine or machines alleged in Paragraph V of the Bill of Complaint to have been sold by defendant in infringement of the Howard F. Snyder patent No. 1,866,779 upon which plaintiff will rely at the trial of this cause in support of its allegation of infringement.

It is further ordered that the time within which the defendant may file its answer, or otherwise move, be extended to twenty (20) days after the bill of particulars has been filed, and a copy thereof delivered to the solicitors for the defendant in accordance with this order.

FRANCIS G. CAFFEY,
United States District Judge.

Dated: New York, N. Y., April 28th, 1933.

Approved as to form and consented to.

JOHN F. RYAN,
Solicitor for Plaintiff.

Dated: New York, N. Y., April 27th, 1933.

40

Plaintiff's Bill of Particulars (Maytag Company v. Easy Washing Machine Corporation).

(Filed May 20, 1933.)

UNITED STATES DISTRICT COURT,

SOUTHERN DISTRICT OF NEW YORK.

THE MAYTAG COMPANY, Plaintiff, vs. EASY WASHING MACHINE CORPORATION, Defendant.	Equity No. 75-202.

41

Comes now the plaintiff, The Maytag Company, in response to the order for bill of particulars dated April 28th, 1933, and states:

1. So far as at present advised plaintiff will rely at the trial of this cause in support of its
42 allegations of infringement, on the following claims of the Howard F. Snyder patent No. 1,866,779, to-wit: Claims 1, 3, 23, 26, 29, 34, 37 and 38.

2. So far as plaintiff is now informed and advised it will rely at the trial of this cause in support of its allegations of infringement, upon the following machines, and any others which may come to its attention which it may consider to be infringements, to-wit:

All washing machines made and sold by defendant under the trade name or mark "Easy,"

generally designated as (a) The Agitator-Wringer Easy, and (b) The Damp Dryer Easy—Easy Agitator Washing Action.

THE MAYTAG COMPANY,
By WALLACE R. LANE.

JOHN F. RYAN,
Solicitor for Plaintiff.

44

Answer (Maytag Company v. Easy Washing Machine Corporation).

(Filed June 9, 1933.)

UNITED STATES DISTRICT COURT,

SOUTHERN DISTRICT OF NEW YORK.

45

THE MAYTAG COMPANY, Plaintiff, vs. EASY WASHING MACHINE CORPORATION, Defendant.	In Equity No. 75-202. On Letters Patent No. 1,866,779.

TO THE HONORABLE, THE JUDGES OF THE DISTRICT COURT OF THE UNITED STATES, IN AND FOR THE SOUTHERN DISTRICT OF NEW YORK:

The defendant above named, answering the Bill of Complaint herein, alleges:

46 *Answer (Maytag Company v. Easy Washing Machine Corporation).*

1. Defendant denies each and every allegation in the Bill of Complaint except as herein admitted or specifically answered and avoided, and demands strict proof of each and every allegation in the Bill of Complaint.

II. Defendant, answering Paragraph I of the Bill of Complaint, is not informed as to the citizenship, habitation, residence and incorpora-
47 tion of the plaintiff, and therefore neither admits nor denies the same, but leaves plaintiff to make such proof thereof as it may be advised. Defendant admits, however, that it is a corporation of the State of Delaware, and a citizen, inhabitant and resident thereof, and has an office and a regular and established place of business in the City of New York, State of New York, within the Southern District of New York, but denies that it has committed any acts of infringement of the patent referred to in the Bill of Complaint. Defendant admits that United
48 States Letters Patent No. 1,866,779, for alleged improvements in Washing Machines was issued on July 12, 1932, to The Maytag Company, on an application filed June 14, 1922, by Howard F. Snyder, but denies that said Howard F. Snyder was the first, original and sole inventor of the alleged improvements described and claimed in said Letters Patent, or was lawfully entitled to obtain letters patent for said alleged improvements, and denies that said Letters Patent are valid. Defendant is not informed otherwise than by the Bill of Complaint, and therefore denies, that said Howard F. Snyder did, by proper in-

strument in writing, sell, assign and transfer all right, title and interest in, to and under said alleged improvements, the application for patent therefor, and the Letters Patent therefor, to The Maytag Company, an Iowa corporation, and that thereafter the said The Maytag Company, the Iowa corporation, did, by proper instrument in writing, sell, assign and transfer all right, title and interest in, to and under said alleged improvements, the application for patent therefor, and the Letters Patent therefor, to the plaintiff, The Maytag Company, a Delaware corporation; and defendant denies all of the other allegations contained in said Paragraph I of the said Bill of Complaint.

III. Defendant, answering Paragraph II of the Bill of Complaint, has no knowledge of the allegations thereof and therefore denies the same.

IV. Defendant, answering Paragraph III of the Bill of Complaint, is not informed otherwise than by the Bill of Complaint, and therefore denies, that plaintiff is the sole owner of all rights and privileges granted and secured, or intended to be granted and secured by said Letters Patent No. 1,866,779, including all right of recovery for past infringement thereof, and that plaintiff has been put to great trouble and expense in and about introducing the said alleged improvements into use. Further answering Paragraph III of the Bill of Complaint, defendant denies that washing machines utilizing the said alleged improvements embody a radically new principle of

operation and distinctive construction and denies all of the other allegations contained in said Paragraph III of the Bill of Complaint.

V. Defendant denies all of the allegations contained in Paragraph IV of the Bill of Complaint.

VI. Defendant, answering Paragraph V of the Bill of Complaint, denies that it has infringed upon said Letters Patent No. 1,866,779 and specifically denies that, since the issuance of said Letters Patent and prior to the commencement of this suit, it has deprived plaintiff of profits to which plaintiff would be entitled, or has made or is making, causing to be made, selling or using washing machines embodying the alleged improvements described and claimed in the said Letters Patent, and denies all of the other allegations contained in the said Paragraph V of the Bill of Complaint.

VII. Defendant, further answering, avers that the alleged improvements described in the said Letters Patent and attempted to be patented thereby, and all material and substantial parts thereof, fail to embody any substantial variation or change from that which existed in the prior art at the time of the alleged invention or discovery thereof by said Snyder, and did not involve the exercise of the inventive faculty or constitute the subject matter of invention proper to be secured by the grant of Letters Patent of the United States within the meaning or intent of the patent laws relating thereto.

Answer (Maytag Company v. Easy Washing Machine Corporation).

VIII. Defendant, further answering, avers that the Letters Patent No. 1,866,779 were and are wholly invalid and void, because the alleged inventions, improvements and discoveries described and claimed therein, and all material and substantial parts thereof had been published, described and patented prior to the alleged inventions, improvements and discoveries thereof by said Snyder, or more than two years prior to the filing date of the application for said Letters Patent, in and by the following specified Letters Patent and publications, to wit:

UNITED STATES PATENTS.

Patent No.	*Patentee*	*Date of Issue*
No number	Bolton	Aug. 2, 1808
17,790	Hewit	July 14, 1857
61,067	Hittel	Jan. 8, 1867
74,052	Covel	Feb. 4, 1868
83,145	Ferguson	Oct. 20, 1868
94,005	King, *et al.*	Aug. 24, 1869
95,565	Covel	Oct. 5, 1869
95,825	Moore, *et al.*	Oct. 12, 1869
98,148	Cindel	Dec. 21, 1869
100,253	Brown	Mar. 1, 1870
102,046	Russell, *et al.*	Apr. 19, 1870
106,853	Morse	Aug. 30, 1870
112,603	King	Mar. 14, 1871
113,762	Groat	Apr. 18, 1871
114,305	Kimball	May 2, 1871
114,873	Steele	May 16, 1871
131,029	Runkle	Sept. 24, 1872
143,225	Davis	Sept. 30, 1873

58 *Answer (Maytag Company v. Easy Washing Machine Corporation).*

Patent No.	*Patentee*	*Date of Issue*
178,525	Herr	June 13, 1876
246,188	Murken	Aug. 23, 1881
361,163	Jacoby	Apr. 12, 1887
380,445	Mears, *et al.*	Apr. 3, 1888
443,778	Mears, *et al.*	Dec. 30, 1890
444,421	Christman	Jan. 13, 1891
544,996	Schultz, *et al.*	Aug. 20, 1895
671,382	Kellogg	Apr. 2, 1901
59 738,560	Miller	Sept. 8, 1903
791,756	Dorval	June 6, 1905
807,508	Shaw	Dec. 19, 1905
832,787	Foster, *et al.*	Oct. 9, 1906
864,591	Adams	Aug. 27, 1907
866,612	Allen	Sept. 24, 1907
923,101	Adams	May 25, 1909
927,069	Phillippy	July 6, 1909
1,096,867	Shaw, *et al.*	May 19, 1914
1,118,210	Mills, *et al.*	Nov. 24, 1914
1,155,107	Staley	Sept. 28, 1915
1,157,222	Hoffman	Oct. 19, 1915
60 1,240,826	Davis	Sept. 25, 1917
1,250,810	Dazey	Dec. 18, 1917
1,253,536	Schneider	Jan. 15, 1918
1,391,214	Snyder	Sept. 20, 1921
1,393,969	Ritz, *et al.*	Oct. 18, 1921
1,430,322	Rainalter	Sept. 26, 1922
1,496,305	Doughty, *et al.*	June 3, 1924
1,644,959	Snyder	Oct. 11, 1927

BRITISH PATENTS.

Newton, No. 2,577, of 1869
Hanna, No. 19,027, of 1889
Jardine, No. 18,202, of 1891

61

FRENCH PATENTS.

Schaede, No. 329,929, Aug. 8, 1903
Rissman, No. 342,302, Sept. 5, 1904
Henin, *et al.*, No. 363,514, Aug. 2, 1906
Versaille, *et al.*, No. 398,798, June 14, 1909
Hershey, No. 470,923, Oct. 6, 1914

GERMAN PATENTS.

62

Holzman, No. 3,665, of 1877
Muhlmann, *et al.*, No. 62,444, of 1891
Gotze, No. 120,847, of 1900

SWISS PATENTS.

Schaede, No. 27,153, of 1902
Diem, No. 24,545, of 1902
Rissman, No. 27,020, of 1902

PUBLICATIONS.

63

Zeitschrift des Vereines deutscher Ingenieure, Vol. 50, No. 5, Feb. 3, 1906, pp. 158, 159;
Deutsche Landwirtschaftliche Presse, Vol. 32, No. 59, July 26, 1905, p. 508;
1909 Catalogue, Roediger & Richter, Elze (Hannover), Germany;
January 1913 Catalogue, Bebruder Unkel, Dusseldorf, Germany;

and also in other patents and publications which defendant is informed and believes are in existence, but which defendant has not yet ascertained and which, when known and located, de-

fendant prays leave to insert herein by amendment.

IX. Defendant, further answering, avers that the said Letters Patent No. 1,866,779 were and are wholly invalid and void, because said Snyder was not the first, original and sole inventor or discoverer of the alleged inventions, improvements or discoveries described and claimed therein, since all material and substantial parts thereof were, prior to the alleged invention thereof by said Snyder, known and used by others in this country, to wit:

65

The patentees of the United States Letters Patent listed in Paragraph VIII hereof;
Haag Brothers Company, Peoria, Illinois;
Richmond Cedar Works, Richmond, Virginia;
Nineteen Hundred Washer Company, Binghampton, New York;
Voss Brothers Manufacturing Company, Davenport, Iowa;

66

Whirlpool Manufacturing Company, Philadelphia, Pennsylvania;
Miller Manufacturing Company, Inc., Meyersdale, Pennsylvania;
The Michigan Washing Machine Company, Muskegon, Michigan;
Kalamazoo Manufacturing Company, Kalamazoo, Michigan;
The Victor Manufacturing Company, Leavenworth, Kansas;

and by other parties whose names are not now known to defendant but which, when ascertained,

67

defendant prays leave to insert herein by amendment.

X. Defendant, further answering, avers that the said alleged inventions and improvements of said Letters Patent No. 1,866,779, and all material and substantial parts thereof were in public use and on sale in this country, prior to the alleged invention thereof by said Snyder, by the patentees of the United States Letters Patent listed in Paragraph VIII hereof, at the places of residence of such patentees as stated in said patents, respectively; and also by

68

Haag Brothers Company, Peoria, Illinois;
Richmond Cedar Works, Richmond, Virginia;
Nineteen Hundred Washer Company,
Binghampton, New York;
Voss Brothers Manufacturing Company,
Davenport, Iowa;
Whirlpool Manufacturing Company,
Philadelphia, Pennsylvania;

69

Miller Manufacturing Company, Inc.,
Meyersdale, Pennsylvania;
The Michigan Washing Machine Company,
Muskegon, Michigan;
Kalamazoo Manufacturing Company,
Kalamazoo, Michigan;
The Victor Manufacturing Company,
Leavenworth, Kansas;

and by other parties whose names are not now known to defendant but which, when ascertained, defendant prays leave to insert herein by amendment.

XI. Defendant, further answering, avers that the claims in said Letters Patent No. 1,866,779, which purport to be directed to methods or processes, are invalid, because they cover merely the function of a machine and not methods or processes proper to be patented under the patent laws of the United States.

XII. Defendant, further answering, avers that
71 the description of the alleged improvements of said Letters Patent No. 1,866,779 is not in such full, clear, concise and exact terms as to enable any person skilled in the art or science to which they pertain or with which they are most closely connected to make, construct, compound and use the same.

XIII. Defendant, further answering, avers that the claims of said Letters Patent No. 1,866,-779 are ambiguous, uncertain, indefinite, misleading and obscure, and fail to distinctly point
72 out and distinctly set forth the improvements or combinations which the said Snyder claims as his invention or discovery as required by the patent laws of the United States.

XIV. Defendant, further answering, is informed and believes, and therefore avers, that while the application for said Letters Patent No. 1,866,779 was pending in the United States Patent Office, the applicant therefor so limited and confined the claims of the said application under the requirements of the Commissioner of Patents that the plaintiff herein cannot now

seek for or obtain a construction for said claims sufficiently broad to cover apparatus heretofore used by defendant.

XV. Defendant denies the equity of plaintiff's Bill of Complaint and avers that plaintiff is not entitled to an injunction, or to any accounting of profits and damages, or to any recovery whatever against the defendant as prayed for in the Bill of Complaint.

WHEREFORE, defendant prays that the Bill of Complaint be dismissed with costs.

EASY WASHING MACHINE CORPORATION,
By PENNIE, DAVIS, MARVIN & EDMONDS,
Solicitors for Defendant.

WILLIAM H. DAVIS,
DEAN S. EDMONDS,
of Counsel.

76 **Amendment to Answer (Maytag Company v. Easy Washing Machine Corporation).**

(Filed Feb. 7, 1935.)

IN THE
UNITED STATES DISTRICT COURT,
SOUTHERN DISTRICT OF NEW YORK.

THE MAYTAG COMPANY,
Plaintiff,
vs.
77 EASY WASHING MACHINE CORPORATION,
Defendant.

In Equity No. 75-202.

Now comes Easy Washing Machine Corporation, defendant in the above entitled cause, by its solicitors, Pennie, Davis, Marvin & Edmonds, and amends its Answer as follows:

Add the following to the list of patents and publications in Paragraph VIII:

78 UNITED STATES PATENTS.

Patent No.	*Patentee*	*Date of Issue*
Des. 53,745	Miller	Aug. 26, 1919
88,478	Hermance	Mar. 30, 1869
95,573	Dodge	Oct. 5, 1869
273,569	Marchand	Mar. 6, 1883
1,104,263	Johnson	July 21, 1914
1,131,466	Coffield	Mar. 9, 1915
1,231,987	Bickford	July 3, 1917
1,252,808	Johnson	Jan. 8, 1918
1,259,939	Walker	Mar. 19, 1918
1,265,010	Walker	May 7, 1918
1,390,224	Wolcott	Sept. 6, 1921
1,714,894	Snyder	May 28, 1929

Amendment to Answer (Maytag Company v. Easy Washing Machine Corporation). 79

CANADIAN PATENTS.

Patent No.	*Patentee*	*Date of Issue*
142,087	Yates	July 30, 1912
210,784	Ritz, *et al.*	Apr. 19, 1921

BRITISH PATENTS.

Barrett, No. 11,137 of 1890
Smith, No. 8,458 of 1891 80
Barnes, No. 19,566, of 1892
Davies, No. 24,494, of 1895

GERMAN PATENTS.

Püschel, No. 179,019

PUBLICATIONS.

Industrial Rundschau VI Jahrgang,
No. 34, page 266.

Add the following to the list in Paragraph IX: 81

Altorfer Brothers Company,
East Peoria, Illinois;
Alpheus W. Altorfer,
East Peoria, Illinois.

Add the following to the list in Paragraph X:

Mary L. Carr, Ballston Spa, New York.

PENNIE, DAVIS, MARVIN & EDMONDS,
Sclicitors for Defendant.

Dated: New York, N. Y., February 6, 1935.

82 **Stipulation re Use of Testimony and Exhibits from Brooklyn Edison Case (Maytag Company v. Easy Washing Machine Corporation).**

(Filed May 15, 1934.)

UNITED STATES DISTRICT COURT,

SOUTHERN DISTRICT OF NEW YORK.

THE MAYTAG COMPANY, a corporation, Plaintiff, vs. 83 EASY WASHING MACHINE CORPORATION, Defendant.	In Equity No. 75-202.

It is stipulated and agreed by and between the parties hereto through their respective counsel that copies of depositions heretofore or hereafter taken and/or exhibits heretofore or hereafter identified or offered in evidence by either party in the case of The Maytag Company v. Brooklyn-Edison Co., Inc., Equity No. 6888, pending in the 84 United States District Court for the Eastern District of New York may, subject to correction if error appear and to all objections not inconsistent with this stipulation, be offered and used in this case by either party with the same force and effect as if duly taken herein.

Dated, May 12th, 1934.

WALLACE R. LANE,
Counsel for Plaintiff.

IT IS SO ORDERED.

DEAN S. EDMONDS,
Counsel for Defendant.

Dated, May 14, 1934.

ROBERT P. PATTERSON,
U. S. D. J.

85

Supplemental Bill of Complaint (Maytag Company v. Easy Washing Machine Corporation).

(Filed Dec. 11, 1935.)

UNITED STATES DISTRICT COURT,

SOUTHERN DISTRICT OF NEW YORK.

THE MAYTAG COMPANY, a corporation, Plaintiff,

vs.

EASY WASHING MACHINE CORPORATION, Defendant.

86

In Equity No. 75-202.

TO THE HONORABLE THE JUDGES OF SAID COURT:

The Maytag Company, a corporation, plaintiff in the above entitled cause, with leave of court first had and obtained, files this, its Supplemental Bill of Complaint, setting forth and alleging material facts which have occurred since the filing of its original Bill of Complaint herein, and states:

87

I.

That on or about the 3rd day of April, 1933, plaintiff filed its original bill of complaint in this Honorable Court against Easy Washing Machine Corporation, alleging infringement of United States Letters Patent to Howard F. Snyder, No. 1,866,779, dated July 12, 1932, and praying an

injunction and accounting; that thereafter said defendant was duly served with process, entered its appearance, and after being apprised by Bill of Particulars of the claims asserted and the washing machines charged to be infringements, it, on or about June 9, 1933, filed Answer, whereupon the case was at issue and now is and remains at issue and untried.

89

II.

Plaintiff further states that in a suit filed by it in the United States District Court for the Eastern District of New York, on March 8, 1933, as Equity No. 6888, against the Brooklyn Edison Co., Inc., infringement of the aforesaid Snyder Patent No. 1,866,779 was asserted because of the sale, offering for sale, use, causing to be used and demonstrations by Brooklyn Edison Co., Inc., of various infringing washing machines, in-
90 cluding machines known as the Easy manufactured by this defendant, here asserted to be an infringement of said Snyder patent, and being sold from and used at its regular office and place of business in the City of New York, State of New York, within the Southern District of New York, as well as elsewhere in the United States.

In said Brooklyn Edison Co., Inc., suit issue was joined and numerous defenses raised therein, including invalidity of the said Snyder patent and non-infringement thereof by any and all of the machines charged therein to be infringements of said Snyder patent, including said Easy washing machines. This defendant, with full

91

knowledge of plaintiff, was represented in said suit and at the trial thereof and during the taking of depositions therein, by its own attorneys and counsel and by attorneys employed and paid for by Washing Machine Associates, of which this defendant was and is a member as hereinafter set forth, and the expenses of said suit, including all attorneys' fees, were paid by this defendant and/or Washing Machine Associates for 92
the benefit of this defendant. The control and conduct of said suit was under the joint direction of this defendant and said Washing Machine Associates and within the knowledge of plaintiff. Defendant's counsel on May 12, 1934, stipulated in this case that copies of depositions heretofore or hereafter taken and/or exhibits heretofore or hereafter identified or offered in evidence by either party in the case of The Maytag Company vs. Brooklyn Edison Co., Inc., may be offered and used in this case by either party with the same force and effect as if duly taken 93
herein.

III.

On or about January 25, 1933, a committee was formed, with J. C. Nelson, an executive of this defendant, as Chairman "to formulate plans for an organization to raise money as a defense against the Snyder patent (in suit) and also to get the manufacturers lined up so as to deal collectively with Maytag" and "if they concluded to fight Maytag (plaintiff) that each of the defying companies should contribute to a defense

fund" for that purpose. On or about February 8, 1933, a defense plan was reported by the committee of which J. C. Nelson was Chairman, and agreed to by about twenty manufacturers including this defendant, whereupon collections were made from such manufacturers including this defendant, and used to carry on the defense of the Brooklyn Edison Co., Inc., suit. As a part of
95 such plan, and in furtherance of a conspiracy to openly, wilfully and maliciously infringe said Snyder patent and to make, sell and use washing machines in direct infringement thereof, notwithstanding notices of such infringement and requests to cease therefrom, an association was formed called Washing Machine Associates, the said J. C. Nelson, an executive of defendant, being one of the trustees of such association. Said association, through its trustees, proceeded to meet and send out notices and bulletins to numerous manufacturers of washing machines infring-
96 ing the Snyder patent, urging them to ignore said patent and plaintiff's rights in, to and under the same. Said trustees caused such manufacturers to band together and raise funds to resist the rightful demands of plaintiff that they cease infringing said patent and induce them to disregard plaintiff's rights with respect thereto and otherwise damage plaintiff.

In further pursuance of said conspiracy, the Washing Machine Associates defense organization was perfected and large sums of money raised therefrom which have been used in furthering infringement of plaintiff's patent, in resisting its just rights thereunder, and in defray-

97

ing the expense and controlling the defense of suits brought by plaintiff for infringement of its said Snyder patent.

IV.

Plaintiff is informed and believes that this defendant guaranteed the said Brooklyn Edison Co., Inc., against suits for infringement of said 98
Snyder patent and agreed to defend, protect and hold it harmless, because of its sale, use and demonstrations of said Easy Washing Machines manufactured and sold to it by this defendant.

V.

Such proceedings were had in said Brooklyn Edison Co., Inc., suit in the Eastern District of New York as aforesaid, that a trial was had before his Honor, Judge Mortimer W. Byers, wherein the testimony of numerous witnesses 99
was taken and considered and numerous tests and demonstrations were made in open court. The Court, on or about July 17th, handed down a written opinion and decision, and on or about October 7, 1935, after petition for rehearing having been considered and denied, a Decree was entered, copy of which Decree is attached hereto and made a part hereof, in and by which said Snyder patent No. 1,866,779, dated July 12, 1932, was held valid and infringed by each and all of the said washing machines there charged to infringe, including the Easy (here charged to infringe), the Thor, and the A B C machines.

100 *Supplemental Bill of Complaint (Maytag Company v. Easy Washing Machine Corporation).*

VI.

Many of the material facts herein set forth have occurred since the filing of the original Bill of Complaint herein, and others were unknown to plaintiff at that time, and it now, promptly and as soon as possible after learning of said facts, and particularly as soon as possible after
101 the entry of Decree in said Brooklyn Edison Co., Inc., suit, files this its Supplemental Bill.

WHEREFORE, and because of the material facts herein set forth and alleged, plaintiff charges that this defendant, Easy Washing Machine Corporation, has had its day in court with respect to the validity of said Snyder patent No. 1,866,-779, dated July 12, 1932, as well as with respect to all questions of infringement by its manufacture, sale and use of its Easy washing machines and by its conduct and the proceedings had in
102 said Brooklyn Edison Co., Inc., suit, is now herein bound by the proceedings, opinions, orders and decree made and entered in said Brooklyn Edison Co., Inc., suit as fully as it would have been had it been a party of record in said suit, and defendant is now estopped and foreclosed to further contest or litigate the said questions of validity and infringement.

Plaintiff prays, therefore, that defendant be directed to answer this supplemental bill, but not under oath, answer under oath being hereby expressly waived, and that plaintiff may have such

other and further special relief as the facts of the case entitle it to and as equity may require.

THE MAYTAG COMPANY,
By ROY A. BRADT.

WALLACE R. LANE,
OSCAR W. JEFFERY,
JOHN F. RYAN,
Attorneys for Plaintiff.

State of Iowa, }
County of Jasper, } ss.:

ROY A. BRADT, being first duly sworn on oath, states that he is the Vice President of The Maytag Company, a Delaware corporation, plaintiff herein that he has read the foregoing Supplemental Bill of Complaint and knows the contents thereof of his own knowledge, and that the same is true, except as to those matters stated to be on information and belief, and as to those matters he believes them to be true.

ROY A. BRADT.

Subscribed and sworn to before me, at Newton, State of Iowa, this 23rd day of November, 1935.

IMOGENE M. WESTBROOK,
Notary Public,
My commission expires July 4, 1936.

(Seal)

106

Decree (Brooklyn Edison Case) Annexed to Supplemental Bill of Complaint.

UNITED STATES DISTRICT COURT,

EASTERN DISTRICT OF NEW YORK.

THE MAYTAG COMPANY, Plaintiff, v. BROOKLYN EDISON COMPANY, INC., Defendant.	In Equity No. 6888.

107

This cause having been brought on for final hearing upon the pleadings and proofs and after hearing arguments of counsel and considering briefs submitted on behalf of both parties, it is now FOUND, ADJUDGED and DECREED:

108

FIRST: That the patent in suit, being United States Letters Patent No. 1,866,779, dated July 12, 1932, for "Washing Machine," granted to Howard F. Snyder, as assignor to The Maytag Company, is good and valid, particularly as to the claims asserted (23, 26 and 38) and is the property of the plaintiff; that said Letters Patent in respect to all the claims included in the charge of infringement, being claims 23, 26 and 38, has been infringed by the defendant, the Brooklyn Edison Company, Inc., a New York corporation, with its principal place of business in the Borough of Brooklyn, New York City, State of New York, within the Eastern District of New York, by the demonstration, sale and

use and causing and contributing to the use of washing machines known as:

(a) The "A B C" machine, made by Altorfer Bros. Company, of Peoria, Illinois. (Illustrated in evidence by Plaintiff's Exhibit 73.)

(b) The "Thor" machine, made by the Hurley Machine Company and its successor, Electric Household Utilities Corporation of Chicago, Illinois. (Illustrated in evidence by Plaintiff's Exhibits 80 and 89.)

(c) The "Easy" machine, made by the Easy Washing Machine Corporation of Syracuse, New York. (Illustrated in evidence by Plaintiff's Exhibit 1.)

SECOND: That a perpetual injunction issue in due form of law against said defendant, the Brooklyn Edison Company, Inc., enjoining it and those in privity with it, their officers, agents, servants, employees and attorneys and those in active concert or participating with them and each of them, from directly or indirectly manufacturing, selling, using, advertising or offering so to do, any washing machine or part thereof infringing Claims 23 and 26, or either of them, of the Snyder patent No. 1,866,779, dated July 12, 1932, or any device embodying or utilizing the same, and particularly the Easy, the A B C and the Thor washing machines (represented in evidence respectively by Plaintiff's Exhibits 1, 73, 80 and 89) and from directly or indirectly

112 selling, using, advertising or offering for sale any devices for utilizing the method of washing fabrics of Claim 38 of said patent, and from in any manner using, employing or advertising said method, or in any wise contributing thereto, and from in any respect infringing upon said Snyder Patent or aiding or abetting or in any way inducing or contributing to the infringement thereof.

113 THIRD: That the plaintiff recover of defendant the profits which it has derived by reason of the aforesaid infringement and the damage which the plaintiff has sustained by reason of said infringement; that this cause be referred to William E. Warland, as Master of this court, to take and state an accounting of said profits and damages and assess the same, and report thereon pursuant to the statutes and the equity rules in such cases made and provided.

114 FOURTH: That the plaintiff recover its costs in this suit.

Dated, October 7, 1935.

MORTIMER W. BYERS,
United States District Judge.

115

Amendment to Supplemental Bill of Complaint (Maytag Company v. Easy Washing Machine Corporation).

(Filed March 21, 1936.)

UNITED STATES DISTRICT COURT,

SOUTHERN DISTRICT OF NEW YORK.

THE MAYTAG COMPANY, Plaintiff, vs. EASY WASHING MACHINE CORPORATION, Defendant.	In Equity No. 75/202.

116

Comes now the plaintiff and amends its supplemental bill of complaint as follows:

By cancelling Paragraph III, and substituting the following:

117

III.

"The said Washing Machine Associates is an organization of washing machine manufacturers which was organized, prior to the commencement of the said Brooklyn Edison suit and in anticipation of the bringing of suit for infringement of said patent against one or more of the companies comprising such association, for the purpose of collectively contesting the said Snyder patent and plaintiff's rights thereto and thereunder through attorneys employed

and paid to conduct and control the defense of any such suit for the benefit of the said Association and each of the members thereof, and with the object of raising funds and applying the same to pay the expenses of defending any such suit, including the payment of attorneys' fees. Plaintiff further avers that from the time of the organi-
119 zation of said Washing Machine Associates up to the present time, the defendant herein has been an active member thereof."

By adding to Paragraph V:

"Thereafter an appeal to the Circuit Court of Appeals of the Second Circuit, from the said decree of October 7, 1935, was sought and allowed in accordance with the statute in such case made and provided, which appeal is now pending before the
120 said Circuit Court of Appeals."

THE MAYTAG COMPANY,
By JOHN F. RYAN,
its Solicitor.

Dated, March 20, 1936.

121

Answer to Amended Supplemental Bill of Complaint (Maytag Company v. Easy Washing Machine Corporation).

(Filed May 19, 1936.)

UNITED STATES DISTRICT COURT,

SOUTHERN DISTRICT OF NEW YORK.

THE MAYTAG COMPANY, Plaintiff, vs. EASY WASHING MACHINE CORPORATION, Defendant.	In Equity No. 75-202.

122

Defendant, for answer to the amended supplemental bill of complaint, herein, says:

1. Defendant admits the allegations of Paragraph I of the amended supplemental bill of complaint.

123

2. Answering Paragraph II of the amended supplemental bill of complaint, defendant admits that on or about March 8, 1933, plaintiff filed a bill of complaint in the United States District Court for the Eastern District of New York against Brooklyn Edison Company, Inc., for infringement of patent No. 1,866,779 by the sale, offering for sale, use, causing to be used, and demonstration by Brooklyn Edison Company, Inc., of various washing machines, including a washing machine manufactured by defendant. Defendant admits that in said suit

124 issue was joined and numerous defenses raised therein, including validity of said patent No. 1,866,779 and non-infringement thereof by any and all of the machines charged therein to be infringements of said patent No. 1,866,779, including the washing machine manufactured by defendant. Defendant admits that on May 12, 1934, its counsel in the instant case stipulated
125 that copies of depositions identified or offered in evidence by either party in the case of Maytag Company vs. Brooklyn Edison Company, Inc., might be offered and used in the instant case by either party with the same force and effect as if duly taken herein. Defendant denies that it was represented in said Brooklyn Edison suit and at the trial thereof and during the taking of depositions therein, by its own attorneys and counsel, or by attorneys employed and paid for by "Washing Machine Associates" and denies all other allegations contained in said Para-
126 graph II.

3. Answering Paragraph III of the amended supplemental bill of complaint, defendant denies that the organization referred to as "Washing Machine Associates" is an organization of washing machine manufacturers organized in anticipation of the bringing of suits for infringement against one or more of the companies comprising said association for the purpose of collectively contesting the said patent No. 1,866,779 and plaintiff's rights thereto and thereunder through attorneys employed and paid to conduct and control the defense of any such suit for the

benefit of said association, and each of the members thereof, and with the object of raising funds and applying the same to pay the expenses of defending any such suit, including the payment of attorney fees, and denies that it is now or ever has been an active member of any organization having any such purpose.

4. Answering Paragraph IV of the amended supplemental bill of complaint, defendant denies the allegation contained in said paragraph.

5. Answering Paragraph V of the amended supplemental bill of complaint, defendant admits that as the result of proceedings had in the said Brooklyn Edison Company suit, a decree was entered holding certain claims of patent No. 1,866,779 valid and infringed by each and all of the washing machines there charged to infringe, including a washing machine manufactured by defendant, and that thereafter an appeal was taken from said decree to the Circuit Court of Appeals for the Second Circuit, which said appeal is now pending and undetermined before said Circuit Court of Appeals.

6. Answering Paragraph VI of the amended supplemental bill of complaint, defendant is not informed as to the matters therein set forth, and therefore denies all of the allegations therein contained.

EASY WASHING MACHINE CORPORATION,
By PENNIE, DAVIS, MARVIN & EDMONDS,
its Solicitors.

130

Amendment to Original Bill of Complaint (Maytag Company v. Easy Washing Machine Corporation).

(Filed Mar. 2, 1937.)

UNITED STATES DISTRICT COURT,

SOUTHERN DISTRICT OF NEW YORK.

131

THE MAYTAG COMPANY, a corporation, Plaintiff, vs. EASY WASHING MACHINE CORPORATION, Defendant.	In Equity No. 75-202.

Comes now the plaintiff, The Maytag Company, and amends its original Bill of Complaint filed herein April 3, 1933, as supplemented by supplemental bill of complaint filed December

132 10, 1935, and amendment to Supplemental Bill of Complaint filed March 21, 1936, in the following particulars, to-wit:

By adding at the end of Paragraph IV of said original Bill of Complaint an additional paragraph as follows:

"IV-A.

"In said Letters Patent No. 1,866,779, plaintiff, having just become aware of reason to believe that the said patentee Howard F. Snyder through inadvertence, accident or

mistake an vithout any fraudulent or deceptive inten. on or wilful default claimed as his invention or discovery more than that of which he was the first inventor or discoverer, thereupon, on or about February 20, 1937, without unreasonable neglect or delay, made and entered a disclaimer in writing in the United States Patent Office of Claims 1 and 38 of said Letters Patent, averring therein that the subjects-matter of the remaining claims of said Letters Patent are the invention of said Snyder and are a material and substantial part of the thing patented, and are definitely distinguishable from the matter disclaimed. A copy of said disclaimer is attached hereto and made a part hereof, and a duly certified copy thereof is ready here in court to be produced."

By inserting in Paragraph V, in line 3, page 9, after the words and figures "Letters Patent No. 1,866,779" the following: *"particularly claims 23, 26 and 29."*

THE MAYTAG COMPANY,
By WALLACE R. LANE,
its Attorney.

136

Disclaimer Annexed to Amendment to Original Bill of Complaint.

IN THE
UNITED STATES PATENT OFFICE.

In the matter of
Letters Patent No. 1,866,779
Issued July 12, 1932
To Howard F. Snyder
For Washing Machines.

137 To the Honorable Commissioner of Patents:

Your Petitioner, The Maytag Company, a corporation of Delaware, having a place of business at Newton, Jasper County, Iowa, represents that Letters Patent of the United States No. 1,866,779, were granted to it, as assignee of Howard F. Snyder, on July 12, 1932, for a certain improvement in Washing Machines, and that it is now the sole owner of the entire right, title and interest in and to said Letters Patent; that it has just become aware of reasons to be-
138 lieve that through inadvertence, accident or mistake, and without any fraudulent or deceptive intention or willful default, the patentee claimed more than that of which he was the original or first inventor or discoverer in the following claims, to-wit:

"1. The method of cleansing fabrics in a tub consisting in agitating a washing fluid in such a way as to create positively driven violently flowing currents moving away from and back to the plane of the source of

agitation, and also around the tub in one direction in a plane approximately parallel with the plane of agitation, and then causing it to move away from and back to the plane of the source of agitation and in a reverse direction in a plane approximately parallel with the plane of agitation so as to bodily and forcibly cause the fabrics in the tub to travel in substantially the same paths as the fluid, whereby thorough cleansing of 140
the fabric is effected without substantial contact with the rubbing surfaces.

"38. The method of washing fabrics by forcing cleansing liquid through and around them while substantially suspended by the action of the fluid, as distinguished from pulling fabrics through the fluid against scrubbing corrugations, or otherwise scrubbing them by mechanical means, comprising immersing the fabrics in a washing fluid in a container, then vigorously and rapidly 141
impelling the washing fluid in one and then in an opposite outward circulatory direction away from the plane of the source of impulsion and through the fabrics and circumferentially along the interior of the container in rapid succession, and causing these violently opposed currents of fluid to meet and flow inwardly and toward the central portion of the container, and toward the source of impulsion thereby substantially suspending the fabrics in the fluid and cleansing them while thus suspended."

142 *Disclaimer Annexed to Amendment to Original Bill of Complaint.*

And your Petitioner therefore hereby enters its disclaimer of the above claims of said Letters Patent.

Your Petitioner avers that the subjects matter of the remaining claims of said Letters Patent are the invention of said Snyder and are a material and substantial part of the thing patented, and are definitely distinguishable from the matter herein disclaimed.

143 Your Petitioner herewith tenders the sum of Ten ($10.00) Dollars to be applied as the statutory fee for entering this disclaimer.

Signed at Newton, in the County of Jasper, and State of Iowa, this 20th day of February, 1937.

THE MAYTAG COMPANY,
By (signed) ROY A. BRADT.

ATTEST:

144 (signed) E. L. NELSON,
Secretary.

WITNESS:

(signed) E. G. HIGDON,
(signed) GEO. M. UMBREIT.

145

Stipulation as to Certain Testimony in Brooklyn Edison Case.

UNITED STATES DISTRICT COURT,

SOUTHERN DISTRICT OF NEW YORK.

THE MAYTAG COMPANY, Plaintiff, vs. EASY WASHING MACHINE CORPORATION, Defendant.	In Equity No. 75-202.

146

IT IS HEREBY STIPULATED AND AGREED by and between the parties hereto through their respective counsel that the testimony given by the following named witnesses and the exhibits received in evidence in connection therewith in the case of The Maytag Company vs. Brooklyn Edison Co., Inc., lately pending in the United States District Court for the Eastern District of New York, Equity No. 6888, as appears from the corrected typewritten transcript thereof, may be offered and used by either party in this case with the same force and effect as if taken and received herein, the right to urge and request the Court to rule on any objections noted in the said typewritten transcript being reserved by both parties:

147

George L. Miller,
William J. Elliott,
Joe Stephen,
David L. Mooar,
Roy A. Bradt,

148 *Stipulation as to Certain Testimony in Brooklyn Edison Case.*

John E. Herbst,
Carl V. Thornton,
Frederick F. Mason,
Watson A. Osgood, and
Laura Wensley.

IT IS FURTHER STIPULATED AND AGREED that either party may use for this purpose, the copy furnished it by the Court Reporter during the
149 trial of said case, The Maytag Company vs. Brooklyn Edison Co., Inc.

Dated, New York, N. Y., April 22, 1937.

JOHN F. RYAN,
Counsel for Plaintiff.

PENNIE, DAVIS, MARVIN & EDMONDS,
Counsel for Defendant.

It is So Ordered:

150 April 23, 1937,

JOHN C. KNOX,
U. S. D. J.

Bill of Complaint (Maytag Company v. Hurley Machine Company and Electric Household Utilities Corporation).

(Filed October 21, 1935.)

UNITED STATES DISTRICT COURT,

SOUTHERN DISTRICT OF NEW YORK,

THE MAYTAG COMPANY, a corporation,
Plaintiff,
vs.
HURLEY MACHINE COMPANY and ELECTRIC HOUSEHOLD UTILITIES CORPORATION,
Defendants.

In Equity No. 81-257.

The Maytag Company, a corporation, organized and existing under and by virtue of the laws of the State of Delaware, having an office and place of business at Newton, Jasper County, Iowa, a citizen, inhabitant and resident of the State of Delaware, complains against Hurley Machine Company and Electric Household Utilities Corporation, both being corporations organized and existing under and by virtue of the laws of the State of Illinois, and both being citizens, inhabitants and residents of the State of Illinois, with their principal places of business at Chicago, Illinois, and each having an office and a regular and established place of business at 405 Lexington Avenue, New York, New York, where they have both jointly and severally committed acts of infringement as herein complained of, and plaintiff says:

154 *Bill of Complaint (Maytag Company v. Hurley Machine Company and Electric Household Utilities Corporation).*

I.

Howard F. Snyder, being the first, original and sole inventor of a certain new and useful washing machine, not known or used by others in this country before his invention thereof, and not patented or described in any printed pub-
155 lication in this or any foreign country before his invention or discovery thereof, or more than two years prior to his application for patent thereon in the United States, and not patented in a country foreign to the United States on an application filed by him or his legal representatives or assigns more than twelve months before his application for patent in the United States, and not in public use or on sale in the United States for more than two years prior to his application, and not abandoned, and the said Howard F. Snyder having made due application
156 in the United States Patent Office on June 14, 1922, Serial No. 568,158, for a patent for said invention, and having complied in all respects with the requirements of law of the United States for the grant of Letters Patent for said invention, and said application having been duly prosecuted, and said Howard F. Snyder having, by proper assignment in writing, duly executed and delivered on the 25th day of June, 1925, and recorded in the United States Patent Office on the 1st day of July, 1925, in Liber R-124, at page 403, of Transfers of Patents, sold, assigned and transferred unto the Maytag Com-

157

pany, an Iowa corporation, all right, title and interest in, to and under said invention, said application for patent thereon, and the Letters Patent therefor; and the said The Maytag Company, an Iowa corporation, having thereafter, by proper assignment in writing, duly executed and delivered on or about the 14th day of July, 1926, and recorded in the United States Patent Office on the 4th day of August, 1926, in Liber 158
V-127, at page 161, of Transfers of Patents, sold, assigned and transferred unto the plaintiff, the Maytag Company, a Delaware corporation, all right, title and interest in, to and under said invention, said application for patent thereon, and the Letters Patent therefor, which said assignments or duly certified copies thereof are ready here in court to be produced, there was on the 12th day of July, 1932, duly issued to plaintiff, as the assignee by mesne assignments of said Howard F. Snyder, Letters Patent of the United States No. 1,866,779, duly sealed and 159
countersigned and executed in due form of law, whereby there was vested in the plaintiff, its successors and assigns, for the term of seventeen years from and after the 12th day of July, 1932, the exclusive right to make, use and sell said invention throughout the United States and the territories thereof, the original of said patent, or a duly certified copy thereof being ready here in court to be produced, and a printed Patent Office copy of the specifications, claims and drawings thereof are filed herewith as "Plaintiff's Exhibit, Plaintiff's Patent."

160 *Bill of Complaint (Maytag Company v. Hurley Machine Company and Electric Household Utilities Corporation).*

II.

Plaintiff states that on or about September 8th, 1926, the United States Patent Office declared an interference between the then pending said Howard F. Snyder application and an application of Cornelius C. Unruh, filed June 18, 1925, Serial No. 38,109, for reissue of his patent
161 No. 1,459,438, dated June 19, 1923. This interference was vigorously contested from the time of its declaration up to and including November 21, 1931, when Unruh's petition for rehearing was denied by the United States Court of Customs and Patent Appeals. Commencing with the time when it appeared that Unruh was much later in date of invention than Snyder, Unruh filed motions to dissolve the interference on the grounds of indefiniteness, lack of patentability, improper method claims, and scope, of various of the claims now appearing in the Snyder pat-
162 ent, all of which were decided adversely to him as to claims now appearing in the Snyder patent.

During the course of said interference proceedings in the United States Patent Office, prior patents, publications (United States and foreign), and other prior art were all searched, examined and called to the attention of the United States Patent Office, and fully argued before it in an attempt to prevent the issuance of the Snyder patent with such claims as now appear therein, and notwithstanding this, various tribunals of the Patent Office held that Snyder was entitled to these claims as covering

163

his invention, which holding was affirmed by the Court of Customs and Patent Appeals in its decision of June 1, 1931. Notwithstanding plaintiff made every effort to have the interference proceedings brought to an early termination and have the said Snyder patent issued at the earliest possible date, the various motions, contests and appeals made by said Unruh prevented a final decision in the Court of Customs and 164.
Patent Appeals until November 20, 1931, and prevented and delayed the issuance of the said patent to Snyder.

From the date when the Court of Customs and Patent Appeals denied said Unruh's petition for rehearing up to and including the allowance of said Snyder application on June 11, 1932, Snyder vigorously prosecuted his application to allowance, and immediately upon being notified of the allowance, paid the final fee, with the result that the patent in suit was issued to plaintiff, as assignee, on July 12, 1932. 165

Plaintiff is also informed and believes that washing machine manufacturers and sellers, including these defendants, also were conversant with the pendency of the said interference between Unruh and Snyder, were constantly advised as to its progress, and were advised publicly concerning it shortly after rendition of the decision of the Court of Customs and Patent Appeals on June 1st, 1931.

The manufacture and sale of washing machines by or at the instance of the defendants, utilizing the invention disclosed and claimed in

the patent in suit, was commenced long subsequent to the time when said Unruh-Snyder Interference was declared and the delay caused by this interference enabled various manufacturers and sellers of washing machines, including these defendants, to reap large profits and benefits from the sale of such washing machines, while plaintiff was powerless to prevent this
167 inequitable invasion of its rights, due to the continued pendency of the proceedings at the Patent Office.

III.

Plaintiff commenced early in 1922 the extensive sale and distribution of washing machines utilizing the invention disclosed in the Snyder application, which resulted in the patent in suit, and it was only after plaintiff's product had been widely sold and distributed for a
168 number of years, and washing machine manufacturers and sellers, including these defendants, became cognizant that this machine was a distinctively new product and there was a great demand therefor that defendants and other manufacturers commenced the manufacture and sale of machines like those against which the charge of infringement is asserted.

IV.

Plaintiff states that since its issuance, it has been and is now the sole and exclusive owner of said invention and said Letters Patent No.

169

1,866,779, and of all rights, and privileges granted and secured, or intended to be granted and secured thereby, including all rights of recovery for past infringement thereof. Since plaintiff became the owner of said invention and the application for Letters Patent therefor, as heretofore alleged, out of which the said patent has now issued, it has invested and expended large sums of money and been to great trouble 170 and expense in securing said patent and in and about said invention for the purpose of introducing the same into use, and making the same profitable and useful to both plaintiff and the public. Plaintiff alleges that the said washing machine utilizing said invention embodied a radically new and distinctive construction and principle of operation, and plaintiff enjoyed an exclusive market in the sale thereof for several years following its introduction by plaintiff commencing early in 1922; said invention is of great commercial value and practical utility, and of 171 great benefit and advantage to plaintiff and the public, and if plaintiff can receive lawful protection against infringement of said Letters Patent, they will be of great value to it and large profits will accrue to it therefrom.

The plaintiff is equipped and maintains a large and extensive plant and factory and a large force of employees for the making of said washing machines, and has the necessary facilities for supplying all demands for said invention made under and in accordance with said patent promptly and at a fair and reasonable cost and price to the public.

V.

Plaintiff has caused to be marked, since the issuance of the said Snyder patent, all of its devices made under said Snyder patent with the patent markings required by law. These defendants have been duly notified of their infringement of said patent, plaintiff's ownership there-
173 of and rights thereunder, and have been requested to desist from infringement thereof but have refused so to do, and have continued, after notice, to make or have made for them, and to sell, use and cause to be used said infringing washing machine.

VI.

Plaintiff further shows that these defendants by and through their executive officer, E. N. Hurley, Jr., and others, instigated and entered
174 into a plan and conspiracy with numerous washing machine manufacturers in the United States, including:

Easy Washing Machine Corporation, of Syracuse, New York;
The Apex Electrical Mfg. Co., of Cleveland, Ohio;
Haag Bros. Co., of Peoria, Illinois;
Horton Mfg. Co., of Fort Wayne, Ind.

and others, to openly, wilfully and maliciously infringe plaintiff's said Snyder patent No. 1,866,779, and to make and sell washing ma-

chines in direct infringement thereof, notwithstanding notices to each of them from plaintiff of its said patent and of their infringement, and a request to cease from such infringement. On or about January 25, 1933, a committee was formed, with J. C. Nelson, an executive of the Easy Washing Machine Corporation as Chairman, and E. N. Hurley, Jr., an executive of defendants, as a member "to formulate plans for an organization to raise money as a defense against the Snyder patent [in suit] and also to get the manufacturers lined up so as to deal collectively with Maytag" and "if they concluded to fight Maytag [plaintiff] that each of the defying companies should contribute to a defense fund" for that purpose. That on or about February 8, 1933, a defense plan having been reported by said committee of which J. C. Nelson was Chairman, was signed up and agreed to by about twenty manufacturers, including defendants, whereupon collections were made from such manufacturers, including defendants, and used to carry on the defense of the Brooklyn Edison Co. suit, hereinafter referred to, and thereafter said companies were co-operating at the instance of said committee to supply material thought to be useful in making the defense. As a part of such plan and conspiracy, an association was formed called Washing Machine Associates, with an office at the Hurley Machine Co., in Chicago, Illinois, and with trustees consisting of E. N. Hurley, Jr., an executive officer of the defendant corporations, J. C.

Nelson, an executive officer of the Easy Washing Machine Corporation, C. G. Frantz, an executive officer of the Apex Electrical Manufacturing Co., and Arthur H. Peters, an executive officer of the Horton Mfg. Co., which association, through its trustees, proceeded to meet and send out notices and bulletins to numerous manufacturers of washing machines infringing the
179 Snyder patent, urging them to ignore said patent and plaintiff's rights in, to and under the same. Said trustees caused such manufacturers to band together and raise funds to resist the rightful demands of plaintiff that they cease infringing said patent and induced them to disregard plaintiff's rights with respect thereto and otherwise damage plaintiff. Pursuant to such plan, E. N. Hurley, Jr., executive officer of defendants and one of the trustees of such defense association, stated to such infringing manufacturers and others in connection with the
180 Brooklyn Edison Co. suit hereinafter referred to that—

> "Easy is a member of the defense group of which our company is a member and we are literally partners of the Easy Company in this fight and expect to stand shoulder to shoulder with them in the common cause."

and

> "Easy's success in fighting this situation will be our success."

In further pursuance of said conspiracy, the Washing Machine Associates defense organiza-

181

tion was perfected and large sums of money raised therefrom which have been used in furthering infringement of plaintiff's said patent and resisting its just rights thereunder, and in defraying the entire expense and controlling the defense of suits for infringement brought by plaintiff under the Snyder patent on account of the manufacture, sale and use of machines infringing it made by any member of the said 182
Washing Machine Associates.

Plaintiff further states that in a suit filed by it in the United States District Court for the Eastern District of New York, on March 8, 1933, as Equity No. 6888, against the Brooklyn Edison Co., Inc., infringement of the aforesaid Snyder patent No. 1,866,779, was asserted because of the sale, offering for sale, use, causing to be used, and demonstrations, by Brooklyn Edison Co., Inc., of various infringing washing machines, including machines known as the "Easy" manufactured by the said Easy Washing Machine Corporation, of Syracuse, New York; washing machines known as "A B C," together with various additional names and designations manufactured by Altorfer Bros. Company at Peoria, Illinois, and elsewhere in the United States and sold in New York City, New York; and washing machines known as "Thor," and various additional names and designations manufactured by defendants at Chicago, Illinois, and elsewhere in the United States, and sold and used from and at defendants' regular office and place of business at 405 Lexington Avenue, New York, New York, within the Southern Dis-

183

trict of New York, and through the Brooklyn Edison Co., Inc., at Brooklyn, New York, within the Eastern District of New York, and elsewhere in the United States.

In said Brooklyn Edison Co., Inc., suit, issue was joined and numerous defenses raised therein, including invalidity of the Snyder patent and non-infringement thereof by and all of
185 the machines charged therein to be infringements of said patent, including said Easy, A B C, and Thor machines. The defendants, with full knowledge of plaintiff, were each represented in said suit and at the trial thereof, and during the taking of depositions therein, by attorneys employed and paid for by said Washing Machine Associates, and by their own attorneys and counsel, and the expenses of said suit, including all attorneys' fees, were paid by said Washing Machine Associates, for the benefit of defendants and other infringing manufacturers.
186 The control and conduct of said suit was under the joint direction of said Washing Machine Associates, among which were these defendants, and within the knowledge of the plaintiff.

In furtherance of said plan and conspiracy, each and every of the said Washing Machine Associates, including these defendants, and other companies and officers thereof among said associates, participated in developing asserted prior art patents, publications and uses, supplied evidence and witnesses from their own companies, and operated both jointly and severally in the defense of said suit for all purposes and in all ways the same as though they were

187

each individually made parties thereto. Plaintiff is informed and believes that the said Brooklyn Edison Co., Inc., paid none of the expenses of the defense of said suit, having been guaranteed against infringement by said Easy Washing Machine Corporation, the defendants, and other infringing manufacturers, and the defense thereof having been taken over completely by said Washing Machine Associates, with the full co-
188
operation and instigation of the Easy Washing Machine Corporation, these defendants, and other infringing manufacturers, who directed said defense, contributed thereto and fully cooperated therein.

Such proceedings were had in said suit in the Eastern District of New York, as aforesaid, that a trial was had before his Honor, Judge Mortimer W. Byers, wherein the testimony of numerous witnesses was taken and considered, and numerous tests and demonstrations were made in open court. The court on or about July
189
17, 1935, handed down a written opinion and decision, and on or about October 7, 1935, a decree was entered thereon, copies of each of which are attached hereto and made a part hereof, in and by which the said Snyder patent N. 1,866,779, dated July 12, 1932, was held valid and infringed by each and all of the said washing machines there charged to infringe, including the Thor machine (here charged to infringe), the Easy and the A B C machines.

Wherefore, plaintiff charges and alleges that these defendants, Hurley Machine Company and Electric Household Utilities Corporation have

had their day in court with respect to the validity of said Snyder patent No. 1,866,779, dated July 12, 1932, as well as with respect to all questions of infringement by their joint and several manufacture and sale of various washing machines as aforesaid, and by their conduct and the proceedings had in said Brooklyn Edison Co. suit are now herein bound by the pro-
191 ceedings, opinions, orders and decrees made and entered in said Brooklyn Edison Co. suit as fully as they would have been, had they been parties of record (defendants) in said suit. Defendants, and each of them, are now estopped and foreclosed to further contest or litigate the said questions of validity and infringement.

VII.

Defendants, well knowing the premises and in violation of the rights of plaintiff, after re-
192 peated notices of said patent, plaintiff's exclusive rights thereunder, and of their infringement thereof, without authority under said Letters Patent or otherwise since the issue thereof and the acquirement of plaintiff's exclusive ownership thereof and rights thereunder, and prior to the commencement of this suit and within six years within the Southern District of New York, and elsewhere in the United States, and the territories thereof, have wrongfully, wantonly and continuously, both jointly and severally; infringed said Letters Patent No. 1,866,779, dated July 12, 1932, and made, sold, used, and caused and contributed to the use of washing machines embodying the said invention on a large and

193

growing scale and are still so doing and are threatening so to do in the immediate future and during the term of said Letters Patent. Although requested to desist from said infringement, defendants have refused and still refuse so to do, whereby plaintiff has been, is still being, and will be so long as such infringement continues, greatly and irreparably damaged and injured and deprived of the gains and profits 194 which it would otherwise make under said Letters Patent and defendants have made and are making by such infringement, large and continuing profits which belong to plaintiff, the amount of which plaintiff cannot ascertain except by the accounting herein prayed. Defendants' acts have had and are also now having the effect of inducing and causing others to disregard plaintiff's rights and to infringe its said patent.

VIII.

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Forasmuch as plaintiff can have no adequate relief except in this court of equity and as the acts and doings of defendants are contrary to equity and to the end, therefore, that defendants may show, if they can, why plaintiff should not have the relief hereby prayed, and may without oath, answer under oath being hereby expressly waived, to the best and utmost of their knowledge, remembrance, information and belief, full, true, direct and perfect answer make to all and singular, the matters and things hereinbefore stated and charged as fully and particularly as if separately and severally interrogated as to each and every of said matters, plaintiff files this its Bill of Complaint.

196 *Bill of Complaint (Maytag Company v. Hurley Machine Company and Electric Household Utilities Corporation).*

WHEREFORE, plaintiff prays a preliminary injunction pending this suit, and a perpetual injunction restraining and enjoining these defendants and their privies, both jointly and severally, their officers, agents, servants, employees and attorneys, and those in active concert or participating with them from making, selling, using, causing or contributing to the use of, or
197 demonstrating said patented invention or any part thereof, or offering so to do, or aiding or abetting or in any way inducing or contributing to infringement of said patent No. 1,866,779, dated July 12, 1932, and from in any way advertising said washing machines herein complained of or parts thereof.

Plaintiff further prays that said patent No. 1,866,779, dated July 12, 1932, may be declared to be valid and plaintiff to be the sole and lawful owner thereof and of all rights thereto and thereunder.

198 Plaintiff further prays that this cause may be referred to a master to take and state an accounting of the profits, gains, savings, advantages and benefits accruing to defendants and the damages done plaintiff by reason of said infringement, and that said master may be given all the powers conferred upon masters by law and the rules in equity, and that plaintiff have judgment for such profits, gains, savings, advantages, benefits and damages, and all costs of this suit, including plaintiff's disbursements, and that the damages awarded may be increased threefold in view of the wanton character of this infringement, and that plaintiff may have

199

such other and further relief as equity may require.

THE MAYTAG COMPANY,
(Sgd.) By ROY A. BRADT,
Vice-President.

(Sgd.) WALLACE R. LANE,
(Sgd.) OSCAR W. JEFFERY,
(Sgd.) JOHN F. RYAN,
Of Counsel for Plaintiff.

200

State of Illinois, }
County of Cook, } ss.:

ROY A. BRADT, being first duly sworn, on oath states, that he is the Vice-President of the Maytag Company, a Delaware corporation, plaintiff herein; that he has read the foregoing bill of complaint and knows the contents thereof of his own knowledge, and that the same is true, except as to those matters stated to be on information and belief, and as to those matters he believes them to be true; that he verily believes that said Howard F. Snyder was the original, first and sole inventor of said washing machine, and that the title to said patent is in plaintiff.

201

ROY A. BRADT.

Subscribed and sworn to before me,
at Chicago, State of Illinois,
this 12th day of October, 1935.

I. V. CURRAN,
Notary Public.
My Commission expires 3/29/38.

202

Opinion (Brooklyn Edison Case) Annexed to Bill of Complaint.

UNITED STATES DISTRICT COURT,

EASTERN DISTRICT OF NEW YORK.

THE MAYTAG COMPANY, Plaintiff, vs. BROOKLYN EDISON COMPANY, INC., 203 Defendant.	Equity #6,888.

July 17, 1935.

APPEARANCES:

WALLACE R. LANE, ESQ., OSCAR W. JEFFERY, ESQ., CLARENCE J. LOFTUS, ESQ., JOHN F. RYAN, ESQ, Counsel for Plaintiff.

204 PENNIE, DAVIS, MARVIN & EDMONDS, ESQS., Solicitors for Defendant, by Dean S. Edmonds, Esq., George I. Haight, Esq., Walter H. Free, Esq., Edgar F. Beaubien, Esq., of Counsel.

BYERS, D. J.:

This cause involves patent No. 1,866,779 issued to the plaintiff corporation July 12th, 1932, upon application filed by Howard F. Snyder deceased on June 14th, 1922. The plaintiff is the assignee of the applicant, and for convenience reference will be made to the grant as the Snyder patent.

205

It has to do with a washing machine referred to as the Maytag.

The defendant corporation is an inhabitant of this district, and is being sued in this court because it has heretofore sold three competing machines known as the Easy, the A. B. C. and the Thor.

No jurisdictional or other questions not touching the merits are presented.

206

A comparison of the plaintiff's machine and those said to offend, as supplemented by the testimony, reveals unmistakably that there is no fundamental difference between them. The mechanisms, method of operation, and physical characteristics are in such close resemblance, that the issue of infringement presents no problems.

The one matter relied upon by the defendant, to avoid infringement, is the shape of the base of the impeller, or agent for agitating the water in which the washing is accomplished. That is not controlling, and will be discussed in connection with the claims.

207

The issue seriously made is as to validity, and that is presented in dual aspect, namely: that the machine does not function according to the specifications and claims; and if it does, the patent is void for lack of invention.

Understanding of the controversy requires that something be said of the course of events in this industry, since the plaintiff's machine was put on the market in 1922. By that time and as the result of efforts which had persisted for over ninety years, washing machines had come to occupy an important place in the domestic economy of the country. The courts have spoken of

their contribution to the general good, (*Iowa Washing Machine Co.* v. *Montgomery Ward & Co.*, 227 Fed. 1004, affd. 234 Fed. 88). The mitigation of the rigors of a prosaic task, which was their purpose, has been a constant challenge to inventive skill, from 1909 when the first patent for such a machine granted, until the present time.

The successive types have been known as the
209 rub-board, the peg-dolly (having pegs, and later blades, to rotate or oscillate the fabrics against corrugations in tubs), the oscillating type (to tumble the fabrics against ribs or corrugations), the cylinder type having a like purpose, and the so-called vacuum-cup type to press the fabrics and squeeze them against the tub bottom. The two latter were making headway against the peg-dolly type, between 1915 and 1920, although the latter was probably in greatest distribution during those years.

The washing of fabrics requires that the de-
210 posit of foreign substances which find lodgment in the meshes, and in the interstices of the threads themselves, shall be overcome and the substances removed. Soapy hot water loosens the particles so engaged, but as these lack migratory properties, expulsion can be accomplished only by deforming the threads, and hence the fabrics. The testimony to this effect is uncontradicted.

That is the requirement to be met in devising a substitution for manually rubbing, squeezing, twisting and manipulating the fabrics, when in the soapy water, which precedes rinsing in clean water. It will be seen that the manipulation cannot be avoided, but if the means of accomplish-

ing it can be mechanically applied, the energy required for manual application can be released for different and more congenial manifestation.

It is unnecessary to portray the operations of the various types of washing machines which preceded the Maytag in point of time; the fact is that they consisted in so disposing mechanical agents in a closed container or wash tub that the necessary deformation of the threads of the fabrics being washed was undertaken by sub- 212
jecting the fabrics to contact with ribs or corrugations or similar obstacles contained in the tub itself.

In the peg-dolly type, which consisted originally of a disc having three or four projecting pegs (so that it looked like a small milking-stool) held in central position by a shaft, the clothes were engaged by the pegs, and the mass was rubbed back and forth by half rotation of the dolly, first in one, then in the reverse direction, and the clothes nearest the walls of the tub were rubbed against it and themselves. In 213
this operation, the mass had frequently to be rearranged through the application of a washing stick. That meant that the cover had to be opened, as occasion required, and heavy wet articles lifted and rearranged.

The operation of the peg-dollies was rigorous, which meant heavy wear and tear.

In some models, the pegs were succeeded by blades which were not quite so deep as the length of the pegs, but they were substantial in construction, usually arranged radially, and in section they were usually triangular.

These blades performed the same office as the

pegs, but admitted of somewhat automatic displacement and movement of the materials being washed, because they tended to slip over the blades instead of being rigidly held as by the pegs.

The diameter of the disc was usually less than that of the tub, but there seems to have been no constant relation of those respective dimensions.

The contra movements of the disc and its pro-
215 jections agitated the water, which gave rise to the necessity for keeping the top of the tub closed. This condition of turbulence being inevitable was accepted but not apparently recognized as a factor in the washing operation, except in the instances later to be noticed.

The asserted contribution of the Snyder patent was the departure from the understanding current in 1920 or thereabouts, that washing machine technique required for its success, a method of rubbing the clothes against projections within the tub, so as to duplicate the process involved
216 in the manual use of a scrub board or wash board, when washing was accomplished entirely by hand, and substituting for that, a process of contorting the fabrics mainly by water action, so that the deformation of the threads and the consequent dislodgement and migration of foreign particles from the meshes and the threads themselves, would be accomplished, without subjecting the fabrics to the heavy wear and tear previously encountered.

Such is the teaching of the Snyder patent, stated in simple language, and the defendant has undertaken to prove that the machine does not function as the patent says it does.

The Maytag machine consists of a tub, in the bottom of which is a power-driven impeller called a gyrator, consisting of a disc substantially less in diameter than the tub, having a cone-shaped center, and upon the disc are mounted four radially disposed blades. This impeller is oscillated at a speed not specified in the patent, so as to set in motion opposed currents of water which establish a flow outward from the bottom center of the tub, upward at the sides to the surface of the water, and back to the center and down to the inner portion of the impeller blades. The fabrics being washed, if the mass is not too great, follow that course, turning over constantly. The water is hot and contains soap, and at the end of ten minutes more or less, the fabrics so treated, are cleansed.

The success of the operation is not questioned, but the controversy is as to how it is accomplished; the defendant contends that the impeller is in effect, the peg-dolly in a different form, and that the result is obtained in the Snyder machine, as it was in those of the earlier forms of construction, and that the patent tells one story and the machine acts another.

The Maytag device was put on the market in 1922, and substantial sales were made in that year; subsequent commercial success has rewarded the plaintiff so that down to the trial, some 2,000,000 machines had been sold, of which 172,000 were of the type illustrated in the patent, and the balance were of the high center post type later adopted. That element is conceded not to affect the issues here involved.

While comparatively little advertising was

done down to 1925, the creation and maintenance of channels of distribution were naturally accompanied by increasing publicity, and large sums came to be expended in later years.

At the outset the dealers were skeptical concerning the claims of the plaintiff that the machine so operated as to wash clothes by water action. Competitors who were then selling the various types of machines above noted, did what
221 was to be expected in fostering that skepticism. It is not contradicted that the plaintiff's machine was referred to in trade circles as an ensilage cutter, and was otherwise derided both by dealers and salesmen from competing manufacturers.

Contemporaneously, two of the latter, the A. B. C. Company, and the Easy Company, acquired Maytag machines for the information of their experimental staffs.

In about 1925 and 1926 competitor's machines appeared upon the market of the same type as
222 the Maytag, that is, they had a bottom-positioned impeller, power driven, and of the same general appearance, and the same claims were made for them in pamphlets issued by the manufacturers, as were made by the Maytag Company, namely, that in these machines, washing was done by water action, with a resulting saving in time, and wear and tear upon the fabrics.

That condition has continued to prevail down to the time when this suit was started.

The assertions in all the advertising matter, and there is a substantial bulk of it in evidence, are flamboyant and unrestrained to the effect that the A. B. C., Easy and Thor washing ma-

223

chines, do their work by water action, etc. The importance of these representations lies in the fact that the manufacturers who made them may be thought to have intended to induce prospective purchasers to believe them to be true.

On these manufacturers' behalf, this defendant takes the position that all such assertions, both of the plaintiff and of its competitors, are untrue. The defendant itself distributed some of these pamphlets but professes not to be embarrassed by that fact.

224

Of course, the legal issues are not to be controlled by sales patter, but when advocacy is confronted by advertising from its own camp, its objectives forfeit something of access.

It is asking much to suggest that the court should close its eyes to the repeated assertions of those who are not in the remote background of this contest, and which are directly at variance with the arguments now made by defendant's counsel.

The foregoing is intended to portray a practical aspect of the controversy which has been waged in this court over the plaintiff's patent.

225

Sight has not been lost of the right of the competing manufacturers to copy the plaintiff's machine in all substantial aspects, and to compete with it on its own ground, if the plaintiff's device is simply the embodiment of teachings of an earlier day (than June 14, 1922), which were then at large.

Certain aspects of the case stand out clearly:

The Maytag machine has been commercially successful, and washes clothes satisfactorily.

The patent was pending for over ten years,

during which there was one interference p
ceeding that went to the Court of Customs a
Patent Appeals (*Unruh* v. *Snyder*, 49 Fed. [
1038—decided June 1, 1931) and another was
tempted without success. During these yea
there were many amendments to the specifi
tions and claims.

It is the defendant's task to overcome the p
sumption of validity, which gains something fr
227 the unusual stress and strain of so searching
process as attended the final grant of letters.

It is necessary now to examine the Snyd
patent at close range.

The specification recites the inventor's obje
as being to provide a novel construction design
to wash and cleanse clothes, fabrics, and t
like, including those of delicate texture whi
would suffer if subjected to the rigors of or
nary washing machines or even washing by ha
It is said "By reducing friction on the artic
to be washed the life of the article is preserved

228 In part the objects are attained by associati
the tub and gyrator and by so operating the l
ter "that the weight of the articles does n
interfere with the gyrator or its action, or w
the tub and its co-action with the gyrator." T
latter may be at the top or bottom of the t
but has always been bottom-positioned in t
Maytag machines.

The articles to be washed are suspended in t
soapy water during the operation so that t
alternating rotary movements of the impel
called gyrator do not interfere with the lat
and so sustain damage while they and the wa
containing them are "turbulently swirled

whirled about with a surging or seething movement within the tub."

The drawing shows a bottom-positioned gyrator, and in that type of construction it is said that the impeller action on the water is to "constantly press the clothes upwardly in a swirling formation so that they are maintained in substantial suspension in the liquid above the blades."

The tub is smooth, i.e., without corrugations, etc., and as shown the bottom is inclined upwardly on both sides adjacent to the impeller "so associated" with it and with the rest of the tub "as to cooperate therewith in aid of such action."

One object of the invention is to provide the method of and apparatus for such cleansing without bringing the fabrics "into substantial rubbing contact" with the tub or the impeller.

Another object is to provide flanges or blades to the impeller to impart the characteristic movement to the water and clothes which has been described, while a rotary or gyratory movement thereof results from the alternating rotary action of the impeller, the water and clothes being driven around the tub first in one and then the other direction. The paths of the water and clothes are called devious; the vigorous agitation of the water prevents the clothes from being injuriously affected by the "gyrator operating or actuating mechanism," which latter can be disconnected.

The new method of washing is described as being accomplished by the action of the water itself on the materials "as distinguished from

their being rubbed or drawn through the water by a dolly or other mechanism, or tumbled against the sides of the tub or rubbed against projections on the interior of the tub."

The water is said to drive and swirl the clothes about the interior of a smooth tub avoiding "substantial contact" with the tub gyrator; the water movement "largely prevents" rubbing the clothes against the tub or the impeller, where-
233 by deterioration of the materials washed is eliminated.

The patentee says it is difficult to explain all the advantages because of the unusual water movement.

The gyrator is defined as an alternating rotary member operable to effect movement of fluids and materials from the central portion thereof to its outer edge.

Reference to the drawings is extensive and comprehensive. The patentee says that he shows a bottom positioned impeller, but also compre-
234 hends one depending from the top of the tub, whereby the characteristic flow heretofore described, would be reversed in direction (not referring to the circulatory currents however.)

The gyrator is annular, dish shaped, as shown, "the central or inner portion of which merges in a continuous concave curve into a central upstanding stem portion 53, which terminates in an upper rounded end. The outer peripheral edge of the trough-like portion 54 extends outwardly and upwardly in a concave curve 55, which is continuous with the dished curve of the portion 54." The blades or flanges are vertical, and incline from their outer edges to the trough-like

portion of the gyrator, extending half-way up and merging into the center stem. They are of "substantial height" so as to project well into the water of the tub. They are lobe shaped, extend considerably above the dish shaped member (disc) to provide sufficient blade surface "to impart a considerable force or throw to the water" outwardly and somewhat parallel to the axis of rotation of the gyrator. 235

The curve upward of the dish assists this water movement, which is also augmented by the inclined adjacent walls of the tub. 236

It may be convenient to pause sufficiently to observe that the assistance and augmentation so referred to, are not deemed essential features of the disclosure, by this court. The water movement is initiated by the blades, and is almost equally present according to the testimony, when the flat disc model is employed in a tub which does not contain walls which incline upwardly adjacent to the impeller.

So much of the specification as relates to the power and coupling is not presently material. 237

The recital continues that when the gyrator is alternately rotated (in practice about 225° is the extent of rotation) or oscillated, the water and materials are given the outward, upward, inward and downward movement previously stated. The materials being washed are said to be given "a quick, snappy, sieving, whirling, reversing double action, produced by the gyrator, doubling the clothes first one way and then the other until every thread in the fabric is acted upon an untold number of times, somewhat like the cracking of a whip-lash in all directions." Again it

is said that it is difficult to describe the action of the water and the clothes produced by the rapid reciprocation of the gyrator, whereby cleansing is accomplished while the materials "are held in suspension" by the peculiar and novel movement and action of the water. In spite of this the patentee thinks that anyone skilled in the art can readily construct and operate the invention and utilize the method dis-
239 closed.

The offending machines constitute a tribute to that prophecy, although it is now said that they are embodiments of earlier teachings.

The claims in suit are the following:

"23. A washing machine comprising in combination, a tub for containing cleansing liquid and materials to be cleansed, said tub having a bottom portion and an upwardly extending wall portion, the interior surface of which is free from rubbing projections,
240 a rotary reciprocatory impeller mounted in the tub adjacent to its bottom, having a base and a plurality of blades, each of which is of substantial height and lateral area, and a central portion projecting upwardly from the base, the upper surface area of the base being considerably less than the horizontal cross-sectional area of the tub through its up -dly extending portion, the margin of said base being spaced a substantial distance away from the upwardly extending portion of the tub, said tub and impeller being so constructed and positioned relative to each other that when the impeller is rapidly

241

reciprocated each blade and its adjacent portion of the impeller base will simultaneously drive the cleansing fluid in one and then an opposite outward upward circulatory direction toward and around the clothes, and act in cooperation with the interior of the tub to cause violently flowing opposed currents of liquid to meet and flow inwardly and downwardly toward the central portion of the tub, and substantially suspend the 242
materials in the fluid while being washed, a rotary reciprocating drive shaft extending upwardly through the bottom of the tub into the interior thereof for supporting the impeller for movement in a fixed plane, and power means for rapidly reciprocating the shaft and impeller for the purposes set forth."

"26. In a washing machine for cleansing fabrics by forcing cleansing fluid through them while substantially suspended by the 243
action of the fluid, as distinguished from pulling or pushing the fabrics through the fluid or against scrubbing forces, or otherwise scrubbing them by mechanical means, a tub, a substantially imperforate rotary reciprocatory impeller mounted to operate in a fixed plane having blades of substantial height and area projecting therefrom in a direction toward the fabrics while they are being cleansed, said tub and impeller being so constructed and arranged as to cooperate while the impeller is in operation for whipping the fluid and violently forcing it

outwardly, upwardly and in a general vertical and circulatory movement and circumferentially of the tub first in one and then in an opposite direction and through and around the materials, and substantially suspending the materials in the fluid while being washed, and power means for rapidly reciprocating the impeller."

245 "38. The method of washing fabrics by forcing cleansing liquid through and around them while substantially suspended by the action of the fluid, as distinguished from pulling fabrics through the fluid against scrubbing corrugations, or otherwise scrubbing them by mechanical means, comprising immersing the fabrics in a washing fluid in a container, then vigorously and rapidly impelling the washing fluid in one and then in an opposite outward circulatory direction away from the plane of the source of im-
246 pulsion and through the fabrics and circumferentially along the interior of the container in rapid succession, and causing these violently opposed currents of fluid to meet and flow inwardly and toward the central portion of the container, and toward the source of impulsion thereby substantially suspending the fabrics in the fluid and cleansing them while thus suspended."

The principal assault upon this patent as has been stated is, that the Maytag machine does not function in accordance with the recitals, or the claims; that the materials are not held in

247

suspension near or over the blades, but are actually battered by them, and are dragged back and forth in the water, precisely as was done by the peg dolly type of washer; and that the required squeezing release of pressure and rubbing are administered by blows struck by the impeller. That in effect the same things are done to the fabrics by the impact of the impeller blades, as was first done by hand in remote times, and latterly by the machines prior to the Maytag.

248

It is not easy to observe how any of these machines really does function. Demonstrations in the court room in glass tubs, so illuminated as to reveal all that the eye can perceive, yielded little which can be stated precisely.

In clear water, tracer clothes alone, if few in number, showed that the course of flow described in the patent does take place, and that in addition there is a constant turning called roll-over of the tracer; the whiplash was not always easy to see, but there was a flexing and doubling back of the fabric as it moved in and around the tub.

249

When numerous articles were added, the movements were more difficult to follow.

As to the tracer, it worked out, up, back to the center and down to the region of the impeller blades, and while there received an impulse that made it continue the journey; whether it was actually struck by the blade, or was caused to move by the motion imparted to the water by the blade, was too close a thing for convincing observation.

On this subject it must be stated, that to liken

the effect the impeller blade upon adjacent fabrics, to the pounding of clothes upon a rock practiced in primitive days, is to fail entirely to distinguish between an under-water thrust and a blow delivered out of water. The force of the motion of the impeller blades is largely expended in moving the water in which the impeller is immersed, and while there is seemingly an observable contact between the fabrics and the im-
251 peller when even a normal or capacity load of materials is treated, the actual striking energy of the blade is obviously inconsiderable. No effort whatever was made by the defendant to cause it to be stated in terms of force or power, nor is it apparent how that could have been contrived.

That there was dragging, i.e., temporary engagement by blades with elements in such a load as the Maytag machine was designed to handle, is true, but it was not continuous, and did not impede the roll-over movements of the materials
252 in the course described.

To say that the clothes were suspended, that is, maintained horizontally or otherwise out of any contact with the impeller, would be untrue. The articles did turn over and flex back and forth, and did flutter as the experts have it, and there was no perceptible rubbing against as distinguished from movement along, the smooth interior of the tub. The fabrics did not move outward *above* the blades, but from down between them.

The defendant objects to the limitation expressed by the patentee in saying that there is no *substantial* contact with the impeller, and

on (Brooklyn Edison Case) Annexed to Bill of Complaint.

253

e clothes are cleansed while they are *sub-*
y suspended, and yet after carefully ob-
; the operations of the Maytag and the
ged machines, one would be hard put to
apt words to portray an impression which
is incapable of statement in exact terms.
s were made to demonstrate that if fab-
re kept out of contact with the impeller,
ere not cleansed. That is true, but the pre-
agency in each case also rendered im- 254
e the necessary contortions of the fabrics
may well contrive the deformation of the
requisite to the eviction of the foreign
es from their interstitial lodgings; once
ed, they can be borne away by the force
contending currents set in motion by the
r.

presence of lint in the water after a period
ration was clearly shown, but that is not
atible with a cleansing process such as the
describe. Perhaps it goes beyond the
e of a washing operation which "elimi- 255
ne deterioration of materials being washed
as the recital proclaims, but that pertains
result, *not to the thing which is done.*
ne absence of a comparison of the per-
of lint found in the water of a Maytag
e, and a like result following the wash-
the same materials in a peg dolly ma-
it cannot be concluded that identical
tic incidents characterize the two oper-

defendant is satisfied that it is impossible
h fabrics in the Maytag or the other ma-
according to the teachings of the pat-

ent, and that therefore such washing does not take place.

The court is not satisfied that this negative has been proven. It inclines perceptibly to the view that the Maytag machine washes fabrics, when not overloaded, perhaps not with mathematical fidelity to the tuition of the patent, but with sufficiently close adherence thereto, to justify the conclusion that the water action
257 created in the machine of the patent plays a far more important part in the final result, than in machines which it superseded and which depended upon rubbing the materials against corrugations and ribs of the tub through the agitation of the peg-dolly. The impression persists that Snyder's was a new step, an advance beyond the latter machines, in that the water action became the major factor in the operation, and so functioned as to distort and manipulate the fabrics and thereby to cause deformation of the threads and if this was aided by such con-
258 tact with the impeller as does take place (Snyder did not teach its absence) the latter is the subordinate and not the dominant phase of the accomplishment. Certainly there is no such thrusting of the fabrics against the tub, as it was the office of the peg-dolly or the bladed dolly to accomplish.

Before leaving this aspect of the discussion it is proper to add that fabrics are not cleansed by flowing water over them, nor by forcing it between the meshes. Experiments to that end do not aid in reaching a conclusion. The deformation of the threads is essential and when the patentee stated that his machine so operated that

259

"every thread in the fabric is acted upon" he demonstrated a knowledge of the essential nature of the problem he had undertaken to solve.

When he said that he caused the several threads to be acted upon as the result of the interplay of the opposed currents of water upon the fabrics, which were set in motion by the impeller as he described, he made a statement which has not been disproved by the evidence in this case.

260

Passing now to the other aspect of the defendant's major assault upon the patent, namely, that it lacks invention, it becomes necessary to consider the constituency of the art as revealed in June of 1922.

The customary deference thereto commonly proclaimed under comparable conditions, need not obscure the fact that none of the accused machines measurably approaches any of those described in the patent relied upon by defendant.

261

Hermance #88, 478. (1869.) This is a wash-boiler, having a perforated wheel at the bottom, of almost the diameter of the container. On the wheel are several hollow U-shaped radial ribs, open at their outer ends. The clothes are laid upon the wheel, and the latter is reciprocated from above the cover in half circles, by a handle connected with a center shaft. The patentee says the suds are tremendously agitated, the water passing through the tubes or ribs centrifugally, and then it rushes in again through the outer ends and perforations."

The defendant operated by a machine which it bought from a user, and asserts that the

characteristic course of flow was so produced. If so, the court could not observe it.

The defendant's witness who owned the machine said the inside, by which was meant the wheel, had not been used for thirty years. That the tub *was* used to boil clothes in. Also that the clothes were rubbed by the dasher against the tub, which was later modified by her statement that she could not see what took place
263 when the tub cover was on.

The abandonment of the agitator in favor of boiling clothes with the help of washing powders, is practical evidence that the machine did not give continuous service according to its patent. The latter did not teach thread deformation as the result of a contortion of the fabrics through the interplay of effective water currents. There is nothing in the patent to indicate that Hermance regarded this as a desirable accomplishment. Hermance did not anticipate Snyder.

Morse, #106,853 (1870). This patent apparently discloses a machine intended to wash clothes by water action, for the tub contains no ribs or corrugations. There is a bottom positioned dasher somewhat smaller in diameter than the tub. The disc supports a series of four prismatic arms disposed so that each projects to the rim, as shown in Fig. 1. The height of these arms is not stated. A center structure supports a circular series of round bars rising to a disc near the top cross bar. The dasher is reciprocated by two hand-operated handles at the top.

The patent states, referring to the risers, "Their purpose is to aid in washing the clothes, and imparting to them reciprocating rotary mo-

265

tions within the tub G, within which the dasher is arranged, and to which it is pivoted, so as to be capable of being moved therein with a reciprocating rotary movement by a person" holding the handles.

The arms are said to aid in preventing the clothes from moving toward and piling about the shaft, as the centrifugal force "generated in the water and tending to throw it upward at the sides of the tub, will be met and counter- 266
acted by lateral currents or forces induced in the water by the arms."

The improvement claimed is the disc and the series of bars arranged with mutual reference and with the shaft to which the handles are fixed.

The defendant's expert says that this machine operates by pounding, rubbing and dragging of the clothes by the disc.

The disclosure of this patent is a triumph of reticence. If the patentee had discovered anything he was careful to conceal it. He merely 267
built a structure, described its essential elements and their respective relative positions, and said that the arms would function as quoted above.

The operation of a reproduction of this machine by hand power in court was said to result in producing the turnover of clothes and the characteristic course of flow found in the Maytag and accused machines. Perhaps it did, but the patentee taught nothing of the kind.

There is no reason for believing that he suspected the necessity for thread deformation, nor is there any proof that clothes were success-

fully washed in his machine as he built and described it.

The best that can be said for Morse is that he believed in the efficacy of water action for cleansing clothes; it has not been demonstrated that he taught how to accomplish it. To declare Snyder invalid on Morse's disclosure could be justified only by attributing to the latter many things which do not appear in the patent.

269

Foster & Garrison, #832,787 (1906). This is an attempt to provide a washing machine in which the fabrics are cleansed by water action, that is, the rebound of water from the sides of a cylindrical shaped tub, which sides constitute an independent unit or shell; the latter is so constructed as to present a circle of triangles the alternate apexes touching the interior of the tub. The water action is created by a bottom positioned impeller, having no supporting disc, and the oscillation or rotation

270 thereof causes the water to move outward toward the triangular surfaces, from which "said water is reacted against and through the clothes."

The defendant argues that this action is impossible, but that for present purposes the patent must be construed as though it were.

How a concededly false premise can lead to any helpful conclusion is not demonstrated.

It has been said above that the mere forcing of water through meshes, does not accomplish the necessary thread deformation, and probably further comment on this patent is unnecessary.

In contrast to the Maytag machine, the Foster and Garrison device is not shown to have

271

washed clothes, either in accordance with the statements in the specifications or otherwise. Whatever else this patent may be, it is not an anticipation of Snyder.

Davis, #1,240,826 (1917). This machine contains an oscillating, dise-shaped agitator, of wood, to float on top of the fabrics being washed. Disposed radially upon the under side of the disc are eight ribs or vanes extending 272
from the rim toward the center; six are shorter than the other two, all are beveled at their inner ends, and the center of the disc is unoccupied. The objects to be attained were the creation of a water flow, generally opposite to that of Snyder, (in the position shown in the drawing) by the action of the ribs, while the latter also "rub lightly upon the fabrics without injuring them."

The water is said to "force its way through the fabrics" creating the described circulation. "Thus the fabrics will be thoroughly cleaned 273
without being pulled and distorted, the circulation of water through the fabrics resulting in the removal of dirt therefrom. In addition to the foregoing the ribs will act as rubbing elements inasmuch as they will engage lightly with the fabrics thereunder."

The claim is for the combination with a tub of the described disc, adapted to create the flow as stated, and a driving shaft, the disc being movable vertically.

Davis taught washing by a combination of rubbing lightly the fabrics, by the ribs, with water flow which would contribute to the de-

sired result. It is not easy to visualize the action of the Davis machine as other than an engagement of the fabrics by a top-positioned set of blades, and an indefinite kind of change in the mass of fabrics caused by the agitation of the water, but the proportionate contribution of the latter, to the actual cleansing is not clear from anything that the inventor says. Thread deformation through water action is not even
275 suggested.

The Davis patent was not thought to anticipate by the Patent Office, and that view is shared by this court.

Doughty and Davis, #1,496,305 (Filed April 8, 1922). This is a machine having a bottom-positioned agitator, of a diameter slightly less than that of the tub. Triangular vanes or ribs are arranged radially from the center, extending almost to the rim of the agitator. The height is not given. The invention claimed was that of
276 having these vanes spaced unsymmetrically, i.e., there is a greater distance between two of them than between the others which are spaced equally apart. The object of this was to create an inequality of currents set up by the oscillation of the agitator, for the purpose of preventing clothes which were being washed, from adhering to the top of the agitator. The patent says that a marked tendency was present if the vanes were equally spaced, "for a single one of the many pieces * * * in the tub to cling to the agitator, an action which interferes seriously with the efficiency of the machine in washing." The three claims are specific on this point.

277

If the device did not work with equally spaced vanes, it is hard to see how Snyder was anticipated, for his device does so operate; if unsymmetrical arrangement of the vanes had to be resorted to, the difficulty to be overcome must have been peculiar to the Doughty machine, but its elimination, if accomplished, did not result in teaching what Snyder taught.

Freeing the materials being washed, is not the same as deforming the threads through the 278
rapid and vigorous currents set up in the Maytag machine.

Defendant's expert says that the washing effect under this patent is produced by squeezing and dragging and that the rubbing effect is greater than in the Maytag.

The defendant's argument is again, that this patent must be regarded as anticipatory of Snyder, because it professes something which it does not accomplish. The argument contains its own answer.

279

British patent to Jardine. #18,202 (1891). Clearly this patent as such, has no bearing on this controversy, for it relates to a device for preventing materials being washed, from slipping under the bottom of a disc, having blades, and capable of being either rotated or oscillated, and placed in the bottom of a tub. There are ribs on the tub, and defendant's expert says that the clothes are rubbed against them if the disc is rotated, but not if it is oscillated. It is pointed to by the defendant as indicating that such an impeller as Snyder contrived, was known in Great Britain over 40 years ago. Perhaps it

was, and perhaps the Jardine device was sold in commerce, and perhaps when coupled to a motor it can be made to oscillate, and create the appearance of functioning as to any of the machines now being examined.

The patent however is quite silent upon the whole subject, and the manufacturers of the challenged machines did not adapt the machine of the Jardine patent to their own purposes.

281 One can read the Jardine patent closely and often and yet not find any teaching whatever of a device to perform the operation of washing according to what Snyder says he invented. Jardine's instruction was of a means to prevent the mangling of fabrics beneath the disc. The presence of the ribs on the tub, and the necessary squeezing of fabrics against them by the blades of the agitator, is too clearly indicated by this patentee to admit of misunderstanding.

French patent, Henin #303,514.

282 This is a patent for a washing machine consisting of a tub having corrugations, a bottom positioned agitator built of cross-members (slats) so constructed, according to the drawing, that there is ample spacing between the slats; the agitator is pierced from below by a hollow tube containing a shaft which oscillates the agitator, manually or mechanically.

The agitator is circular, its diameter being only sufficiently less than that of the tub to permit of clearance. The agitator carries vanes and ribs radially arranged which do not extend laterally to the periphery, and these ribs and

283

vanes, or perhaps only those which extend vertically, contain three apertures, and the office of the agitator is thus described in paragraph 4 of the "Resume."

> "4. An interior disc comprising crossed wooded slats, in combination with wings and ribs, for the purpose of preventing the batch of linen from becoming packed at the bottom of the tub."

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None of the other paragraphs discusses the washing, or the means whereby cleansing is accomplished.

The Henin machine is more like the four structures which are the subject of this cause, than anything else shown in the art as it was known in 1922.

How far it may be said that the disclosure in a foreign patent must be clearer if anything than that in an American patent to establish anticipation is perhaps somewhat in doubt in this circuit—See *Trussell Mfg. Co.* v. *Wilson-Jones Co.*, 50 Fed. (2) 1027 at 1029, where it is said:

285

> "This disclosure is not sufficiently clear to satisfy the rule already mentioned. Indeed, it has been urged that that rule must be applied more strictly to foreign than to domestic patents. Much may be found in the books which seems to support such a distinction. See *Seymour* v. *Osborne*, 11 Wall. 516, 555, 20 L. Ed. 33; *Hanifen* v. *E. H. Godshalk Co.*, 84 F. 649, 651 (C. C. A. 3); In

re Ek, 57 App. D. C. 203, 19 F. (2d) 677, 678. However, we see little basis for it. An inventor is charged with knowledge of whatever the prior art discloses, but the disclosure, to be an anticipation, must be clear and certain. Why it need be more clear in a foreign patent than domestic one, we confess is not obvious to us. But we need not now determine whether the distinction is
287 too firmly established to be disregarded. We mention it merely by way of a caveat."

Within the language quoted, it is thought that Henin fails entirely to disclose a mental concept that may be fairly held to have been prior to Snyder; he was describing an agitator to function in a corrugated tub, which suggests the rubbing of clothes against the corrugations to produce thread deformation. He provided means, not to promote that deformation through the action and counter action of opposed currents
288 of water, but a perforated disc upon which the fabrics would not mat, but he does not disclose why or how that result is produced.

There is nothing in the recital consistent with a purpose to produce cleansing effects save by the battering of fabrics against the corrugated walls of the tub, and in the absence of a statement by the patentee that he contemplated something other than that, it is believed that Snyder is entitled to be judged on the merits of his own disclosure, so far as Henin is concerned.

Nor is it the Henin model which the accused machines embody.

289

French patent Versaille, #398,798 (1909).

This machine involves a tub having non-corrugated sides, and an agitator shaped like a spool, which rotates in alternate directions. Between the upper and lower plates of the agitator, which is as high as the tub is deep, "are radially mounted a series of blades adapted to whip constantly the articles to be washed by projecting them against the side walls of the tub." 290
Later it is said: "In turning, the agitator blades drive the articles to be washed laterally into frictional engagement with the tub wall, from which they rebound toward the agitator. In that way a continuous friction is produced which results in a perfect washing action, with the expenditure of a minimum of physical exertion."

In paragraph 3 of the summary, in referring to this action it is said that the articles "are acted upon between the agitator and the tub."

Enough has been quoted, it is supposed, to indicate that this patentee's conception was al- 291
most precisely unlike that of Snyder.

Whether the machine could be manipulated so as to produce in the lower half of the tub, a water flow comparable to that of the Maytag machine, scarcely touches the issue of anticipation. Versaille depended upon thrusting the fabrics against the sides of the tub, as he said repeatedly. He taught nothing of thread deformation through water action.

This machine also was available to the manufacturers of the accused devices, when they put out their underwater impeller type machines, but without perceptible effect thereon.

292 *Opinion (Brooklyn Edison Case) Annexed to Bill of Complaint.*

Miller, #738,560 (1903).

The defendant offered in evidence two machines built by Miller, apparently between 1915 and 1920. The plaintiff offered the patent in rebuttal. The latter teaches an overhead floating dolly which cooperates with the ribs on the side and bottom of the tub. The specification says, "The rubbing is effected by the action of
293 the side and bottom ribs of the agitator in conjunction with the side and bottom ribs of the tub, and this rubbing in connection with the rush of the water as the agitator is turned within the tub and the squeezing action effected by the up and down movement of the agitator is designed to cleanse the articles in the tub in a satisfactory manner."

The agitator ribs are comparatively large in order to better serve their purpose in moving the water and the clothes. The claims are appropriate to the disclosure.

294 The late abandonment by Miller of ribs in the tub, as shown in Defendant's Exhibit 22, was thought not to affect washing results. This departure perhaps brought the Miller machines into similarity with the teachings of Davis Patent No. 1,240,826, but that would not establish anticipation of Snyder.

Mills, #1,118,210 (1914).

This is a patent relating to gearing in washing machines. On that subject it is quite specific. A bladed agitator is shown in bottom position of the tub, and the only reference thereto in the

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specifications describes their construction. The claims assert nothing concerning the agitator, or what it accomplishes. Defendant's witness Geldhof, the practical designer of the Easy Company, said that such an agitator was harmful in its operations with respect to fabrics being washed, and that he would avoid such a device at all hazards. Certainly Mills revealed nothing in advance of Snyder, except perhaps a warning of something to avoid.

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Covell, #95,565 (1869).

This patent is of interest largely because the inventor visualized washing by water action alone, although he provided vertical ribs for his cylindrical shaped tub. The agitator is at the bottom, and is rotated manually from the top, by a shaft running through a sleeve maintaining it in a fixed position "thus preventing the tendency of the clothing to follow the current of the water, and to become wound around the shaft during its revolution."

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The agitator has beveled radial blades, to generate upward movement of the water, and attached to them, or the upper side of the disc, horizontal thimbles or funnels to form horizontal currents.

The defendant's expert, Prof. Taggart, attributes to the patentee the conception of suspending the fabrics, but Covell does not say so. The witness gives it as his opinion that washing was done by pounding, scrubbing and dragging, from which it is fair to deduce that the ribs of the tubs served the office of opposing the fabrics, rather than the water currents.

No one asserts that Covell's machine has been operated, so that it is impossible to tell whether clothes could be washed in it.

The most that can be said for it is that this inventor had the same end in view, as did Snyder, and the defendant asserts that he did not succeed, and that therefore Snyder must be assumed also to have failed.

Covell did anticipate Snyder in his ambition,
299 but nothing that he teaches concerning his solution of the problem, constitutes tuition which Snyder is shown to have embraced.

Ritz, #1,393,969 (1921).

This patent discloses a disc agitator having three radial blades equally spaced, and intermediate triangular members. It is shown at the bottom of a corrugated tub, and oscillates on a vertical shaft the movement of which is demonstrated. As the agitator oscillates about 180° "the clothes rub against the corrugated side of
300 the tub, and the agitator is free to follow the path of least resistance and to move up and down its sleeve 20 thereby overcoming the wear and tear frequently experienced in machines of this type."

The claims are concerned with the agitator only, the office which it performs being stated as quoted from the specification.

The distinction between this patent and Snyder is too clear to require discussion.

Groat, #113,762 (1871).

This patent covers the form of bottom-positioned agitator or impeller, manually oscillated,

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which the inventor believed capable of functioning so as to cause water to dash up from below the disc containing the ribs, through openings therein provided for that purpose. Such upward impelled jets or currents were struck by the ribs and dashed against and through the fabrics, and "at the same time the ribs D will operate to rub and turn the articles and agitate the water violently above the wheel."

The upward thrust of the water was said to be caused by a web construction beneath the agitator. 302

The patentee uses the term "beater" as synonymous with "ribs."

This is another example of an earlier effort than Snyder's, to construct a water-action washer. There is no testimony as to the success or lack of it, which attended the effort.

Once the distinction is grasped, between intention and accomplishment, as revealed in these several patents, it becomes apparent that the presence of the former, does not establish anticipation of the latter. 303

Perhaps all the patents which have been discussed could have been disposed of by that remark, but they have been referred to herein perhaps at tedious length, so that it may be known that the defendant's contentions in respect of them, have undergone examination.

The other patents referred to fall within the general category of unsuccessful efforts to accomplish the cleansing of fabrics mainly by water action. However impressive the list of failures may be, taken in the aggregate, it does

not follow that Snyder's patent is for that reason to be relegated to the limbo of futility.

In 1922 the art contained under-water impellers having blades, and the means to agitate them; smooth and corrugated tubs, and several announcements that these elements could be associated and operated so as to wash clothes by water action. What it did not contain was a machine that accomplished that purpose.

305 It is next asserted that the specifications of the Snyder patent are not sufficiently "full, clear, concise and exact" within statutory requirements (R. S. 4888, Tit. 35, U. S. C. Sec. 33) to achieve validity.

The alleged obscurity has not proven an insurmountable obstacle to the manufacturers of the machines sold by the defendant.

Those manufacturers are of course members of the public who are entitled to be informed of the dimensions of the invention.

Truly the criticised expressions are not pre-
306 cise, such as the reference to the blades as having *substantial* height and area; and the spacing of the impeller as *substantially* distant from the walls of the tub; and the impeller's requirement of *rapid* reciprocation, in order that water may be forced *violently* outward and the like. It must be remembered that the operation being described, is not easily to be followed in the visual sense, and hence does not lend itself to precise portrayal. This case with its mass of testimony and exhibits, presents an impressive array of controversy concerning what actually takes place within the machine during operations, and it is thought that the specifica-

307

tions must be viewed with tolerance in the light of that circumstance.

The importance of the relation, for instance, between the respective diameters of the impeller and the tub, is a matter of dispute within the defendant's camp; the evidence for the plaintiff is harmonious on that issue, perhaps because but one witness testified on the subject.

The drawings forming a part of the application have not been criticized, and when read 308
with the recitals it cannot be said that the patentee failed to lay bare his concept, and the way in which he embodied it, with sufficient definition to apprise the public and those possessing the conventionally denominated skill, of the metes and bounds of the invention.

A claim comparable to 26 and 38 here involved, was before the court in *Smith* v. *Snow*, 294 U. S. p. 1, in which the patent was held valid and infringed.

The defendant's expert defined "substantial suspension" occurring in Claim 26 and elsewhere 309
as meaning "that the material is in water and not making any contact with the agitator that will result in deformation of the threads and cleansing by reason of such deformation."

That definition may be accepted. It accords with what the court thinks it observed, namely, that the contacts between the fabrics and the impeller were not of sufficient force to batter the fabrics so as to cause thread deformation.

The defendant has failed to demonstrate, however, that thread deformation does not occur as an incident to the torsional stress to which the fabrics are subjected while encountering the

various water currents set in motion by the impeller, and while the fabrics are thereby thrust against and rubbed upon each other.

That the expressions "substantial contacts" and "substantial suspension" thus have a clear meaning to one skilled in the art, follows from the fact that the defendant's expert furnished the definition, which seems to meet the reasonable requirements of the statute with reference
311 to this patent.

Before leaving this argument it may be said that it is thought that there is no requirement for specifying the load of clothes that could be conveniently handled in the plaintiff's machine. Idiosyncrasies of individual technique, raiment, water (with respect to hardness), the degree of soil and its character, and the size and texture of the articles to be cleansed, all have a place in such a matter. Overloading is a mere matter of expereince and observation.

The speed of oscillation could scarcely be
312 more important in the Snyder patent than the velocity of the air current in the Smith incubator, *supra;* so long as the patentee asserted the requirement of sufficient speed to accomplish the definite object stated, it is thought he has made the kind of disclosure that the law requires.

There is a considerable volume of testimony, and much argument in the briefs, concerning actual priority of invention, assuming that such is present in the case, as between Alpheus W. Altorfer of Altorfer Bros., now the A. B. C. and Snyder.

That question was imported into the case

313

shortly before hearing, by the decision of an interference proceeding between Altorfer and Haag reported in 74 Fed. (2) 129 under date of December 24, 1934.

Altorfer's patent covers a washing machine comprised of a tub, the bottom of which is pierced by a vertical shaft drive, to which is affixed an under-water agitator comprising a disc the rim being spaced "a substantial distance from the wall of the tub," (an expression to 314
which the defendant does not except for lack of exactness), a sleeve projecting up from the disc to a drive shaft with which it is connected.

Altorfer filed May 21, 1925, and Haag had done so on July 25, 1924. An interference was declared, and the final decision was in Altofer's favor, on the theory that he preceded Haag. Thus:

> "We are of the opinion that the record shows that Altorfer had fully reduced his invention to practice by the spring of 1921, 315
> or in any event had done so before Haag had entered the field, and that the record does not disclose facts which indicate that Altorfer abandoned his invention, or that he ever suppressed or concealed the same in such a way as to make applicable the doctrine in the case of *Mason* v. *Hepburn, supra.* Altorfer's long delay in filing his application after the reduction to practice and his acts subsequent to his reduction to practice do not indicate any intention to abandon the invention, but, on the contrary, his subsequent acts indicate an intention to

utilize and commercialize the invention at a date dependent upon the result of tests and upon other considerations which we think were wholly reasonable and proper under the circumstances for him to take into consideration."

The defendant cites this decision as establishing Altorfer's invention date as four years
317 earlier than his filing, and argues that Snyder is thus anticipated.

The case is an adjudication as between the parties only, and for the purpose of establishing priority as between them. It was not necessary for the court to award Altorfer any date prior to August of 1923, for the record apparently showed conception by Haag in September of that year.

As between these parties, the decision quoted, although commanding the greatest respect, is deemed not to be controlling as to what Altorfer
318 says he did in 1921. The testimony at bar has been carefully considered, and yields the distinct impression that in 1923 when the Altorfer Company acquired a Maytag machine, for the information of its engineering and designing department, Mr. Altorfer was reminded that he had conducted some experiments at an earlier date, which might be turned to good account.

It was in 1923 that he requested the witness Schellenberg (his employee) to fix the date of making the agitator, Exhibit 33, which he did by writing "February 1921" thereon, showing that in 1923 the former was concerned to establish a date respecting which there were then

319

said to be in existence certain drawings which have since been mislaid or lost.

The absence of shop records cannot be lightly brushed aside. Altorfer was an experienced patentee; in 1921 he had filed 21 applications touching washing machines, dating as far back as 1909.

It is difficult to conclude that in 1921 he did not understand the necessity for making and keeping shop records and notes in order to establish through them, such important matters as the dates of conception and reduction to practice.

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It is not necessary to explore the subject thoroughly, however, for two reasons: First, it clearly appears that while the Snyder application was pending, Altorfer sought to set up an interference based upon his own 1925 application, and was unsuccessful, because the Patent Office held that neither of the two agitators, Defendant's Exhibits 28 or 33, embodied the Snyder disclosure, when used in the corrugated tub in which they were placed when Altorfer said he made his invention.

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Second: Because Altorfer said when testifying in this case, that he had made a study of washing machines for 20 years and had yet to find a method of washing clothes that "did not embody the mechanical rubbing or flexing of the agitating means (namely, the impeller or agitator) on the clothes"—that the water movements do not have a material washing action on the clothes—there is not enough power generated to cause much washing action.

He repeated this in substance with specific

reference to Defendant's Exhibit 33, and its rubbing of clothes against the corrugations of the tub. This testimony had to do with his own machine and if he believed it, he thereby confirmed the Patent Office view above recited.

As a matter of reason, the Altorfer asserted invention cannot be thought to anticipate Snyder, if the former says that his application does not purport to describe a washing machine which
323 operates in the way that Snyder claims for his structure, and it is therefore unnecessary to attempt to fix a date for Altorfer's conception. If it were, the evidence would be deemed insufficient to show more than desultory experimenting prior to the acquisition by Altorfer Brothers, of the Maytag machine in 1923.

If it were essential to fix the date of Snyder's disclosure of his invention, the testimony of Mr. Mason would be relied upon as to January 21, 1921. The reduction to practice preceded that by a matter of months. It is not deemed neces-
324 sary to fix the date, because the evidence fails to establish anticipation, but the subject is referred to because much is made of the undisputed fact that the Snyder impeller in its early form, was operated in a corrugated tub, while the new device was being tested.

This was not a matter of choice. The only tub available during 1919 and 1920 was of the corrugated type, since that kind of tub was being manufactured and sold by the Maytag Company. That tub was not satisfactory in Snyder's opinion, to render his purposes effective, and this explains his change to the smooth walled tub. The narrative is consistent

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with the development of concept recited in the specifications, page 1, line 62, page 2, line 29, and in certain of the claims.

The defendant argues that the claims in suit should be limited to the dish-shaped disc, clearly shown in the drawings, Figs. 4 and 5, of the Snyder patent, and described at page 3, line 55 and 94, as follows:

326 "The gyrator is metal, or other suitable material, and is of generally circular form when viewed in plan. It comprises an annular, trough-like or dish-shaped portion 54, the central or inner portion of which merges in a continuous concave curve into a central upstanding stem portion 53 which tapers upwardly and terminates in an upper rounded end. The outer peripheral edge of the trough-like portion 54 extends outwardly and upwardly in a concave curve 55 which is continuous with the dished curve of the portion 54. The gyrator is provided with 327 liquid impelling means, one form and arrangement of which is illustrated in the drawings. * * *

"As shown in Fig. 4, the blades extend across the dish-shaped member at the lower ends in lobe-shaped form and the upper surfaces of the wings or blades extend considerably above the dish-shaped member to provide sufficient blade surface to impart a considerable force or throw to the water in the direction outwardly and somewhat parallel to the axis of rotation of the gyrator, as hereinbefore described. It is to be noted

that the outer inclined portion 55 of the dish-shaped member assists in this movement and that this directional flow is augmented by the inclined walls 48 of the surrounding trough or tub. The force imparted to the water is sufficient to cause the water to flow upwardly toward the top of the tub, as shown in dotted lines, Fig. 1."

329 The claims are preceded by the customary paragraph reserving the right to depart from the specific description of structure, etc.

From what has been quoted above it appears that Snyder taught sufficient blade surface to impart outward force or throw of water and that this was assisted by the dish shaped disc. Many claims not in suit specify that form of disc. Claim 23 does not, in terms or by implication. The reference to the "adjacent portion of the impeller base" means the inner portion as well as that near the rim.

330 The same is true of Claim 26.

In other words, these claims are in harmony with the invention as described in the specification, and the disclosure of the latter was sufficiently broad to support a claim which did not embrace a dish shaped disc exclusively, but a flat disc was equally within the conception as stated.

Claim 38 is assailed in that it is said to express only the function of the Maytag machine, and to be invalid as a method claim for that reason. The criticism is not without reason, for the flow of water and the opposing currents elsewhere are said to be created in

331

the Maytag machine. The issue is close and may well develop a conflict of opinion.

To this court it seems that the method described involved thread deformation as forecast in the specifications, page 5, line 25, and that such accomplishment by the pressure and interplay of contending currents was something not taught by Snyder's predecessors in this field. The substantial suspension of course was not a suspension at rest, but a movement which 332
did not involve the kind of forceful contact with either impeller or tub which would effect thread deformation.

If that is true, the method is novel. If it can be accomplished in any other machine than the Maytag, then in the language of *Waxham* v. *Smith,* 294 U. S. 20 at 22, "A method, which may be patented irrespective of the particular form of the mechanism which may be availed of for carrying it into operation, is not to be rejected as 'functional,' merely because the specifications show a machine capable of using it 333
(citing cases)."

There is no testimony to the effect that the method as stated in this claim could not be practiced in a machine of another design, which is not a cause for wonder since defendant's main position is that it cannot be done in any machine.

Lacking such proof, the claim will not be held invalid.

The Snyder patent was pending from June 14, 1922, until July 12, 1932, and the file wrapper is a formidable document in volume and content. Defendant criticizes the claims in suit as

334 *Opinion (Brooklyn Edison Case) Annexed to Bill of Complaint.*

having been proposed March 31st, 1932, two years after the Easy machine, and four years after those of the A. B. C. Company were on the market and relies upon several decisions in this circuit to defeat these claims for laches and on the grounds of estoppel, citing cases; these have been examined.

It must be made to appear that these claims introduced new matter and broadened the in-
335 vention as stated, in order that the said decision may be invoked by the defendant.

As to Claim 38, the method, it appears that this point was considered in the interference proceedings of *Unruh* v. *Snyder, etc.,* 49 Fed. (2) 1038, which went to the Court of Customs and Patent Appeals, and measureably delayed the issuance of the Snyder patent. It there appeared that Snyder's method claim was filed in July, 1924, more than two years after the application.

That was Claim 1, reading as follows:

336

"1. The method of cleansing fabrics in a tub consisting in agitating a washing fluid in such a way as to create positively driven violently flowing currents moving away from and back to the plane of the source of agitation, and also around the tub in one direction in a plane approximately parallel with the plane of agitation and then causing it to move away from and back to the plane of the source of agitation and in a reverse direction in a plane parallel with the plane of agitation so as to bodily and forcibly cause the fabrics in the tub to travel

in substantially the same paths as the fluid, whereby thorough cleansing of the fabric is effected without material contact with rubbing surfaces."

With respect to the delay the court said that two-year delay did not defeat Snyder's right to make the claim, because the original disclosure was sufficient to sustain it. While that decision is not controlling in this cause, it is an 338 authority which may be followed without misgiving.

The quoted verbiage is different from that of Claim 38, but the same method or process is thought to be equally embodied in both.

Claims 23 and 26 are not shown to embody any expansion of concept beyond many of those stated in the original application. If this contention had been greatly relied upon, something in the way of an analysis of the file wrapper would have been presented to indicate the advent in the process of solicitation of the al- 339 leged new and larger concept; something that could be related in point of time, to an influential exterior development in the industry or the art.

In the absence of such data, the court has relied upon its own efforts to detect in these claims, anything in extension of the assertions in the application, but without success.

Having in view all that attended the prosecution of this patent, it is thought that mere lapse of time in the formulation of these claims, ought not to count against them, when it is considered that they merely restate in essence

that which was presented for allowance in June, 1922.

Whether the prosecution of the application was as diligent as circumstances would have permitted is difficult of determination, in the absence of insight which this court plainly lacks. It is necessary to take the record as it is found, and unless something inequitable in the plaintiff's cause can be directly traced to the
341 duration of the proceedings in the Patent Office, or the incident thereof, it is not apparent that the plaintiffs' presumptive rights have been impaired.

As was earlier observed, the question of infringement is not difficult. The only argument advanced to avoid it, is that the dish-shaped impeller is vital to the Snyder patent, and as the accused machines have flat discs, they must be held not to infringe. It is not thought that the Snyder patent is so restricted in either its narrative or in Claims 23 and 26, and that the
342 flat disc is equally within its scope.

From what has been said, which necessarily omits reference to much that appears in the testimony, it follows that in the view of this court the defendant has not demonstrated invalidity of the Snyder patent, and that infringement has been shown on the part of each of the accused machines.

The plaintiff may have a decree for injunction and an accounting, to be settled; submit proposed findings in accordance herewith, on notice.

343

Decree (Brooklyn Edison Case) Annexed to Bill of Complaint.

UNITED STATES DISTRICT COURT,

EASTERN DISTRICT OF NEW YORK.

THE MAYTAG COMPANY, Plaintiff, v. BROOKLYN EDISON COMPANY, INC., Defendant.	In Equity No. 6888.

344

This cause having been brought on for final hearing upon the pleadings and proofs and after hearing arguments of counsel and considering briefs submitted on behalf of both parties, it is now FOUND, ADJUDGED and DECREED:

FIRST: That the patent in suit, being United States Letters Patent No. 1,866,779, dated July 12, 1932, for "Washing Machine," granted to Howard F. Snyder, as assignor to The Maytag Company, is good and valid, particularly as to the claims asserted (23, 26 and 38) and is the property of the plaintiff; that said Letters Patent in respect to all the claims included in the charge of infringement, being Claims 23, 26 and 38, has been infringed by the defendant, the Brooklyn Edison Company, Inc., a New York corporation, with its principal place of business in the Borough of Brooklyn, New York City, State of New York, within the Eastern District of New York, by the demonstration, sale and

345

346 *Decree (Brooklyn Edison Case) Annexed to Bill of Complaint.*

use and causing and contributing to the use of washing machines known as:

(a) The "A B C" machine, made by Altorfer Bros. Company, of Peoria, Illinois. (Illustrated in evidence by Plaintiff's Exhibit 73).

(b) The "Thor" machine, made by the
347 Hurley Machine Company and its successor, Electric Household Utilities Corporation, of Chicago, Illinois. (Illustrated in evidence by Plaintiff's Exhibits 80 and 89).

(c) The "Easy" machine, made by the Easy Washing Machine Corporation of Syracuse, New York. (Illustrated in evidence by Plaintiff's Exhibit 1).

SECOND: That a perpetual injunction issue in due form of law against said defendant, the
348 Brooklyn Edison Company, Inc., enjoining it and those in privity with it, their officers, agents, servants, employees and attorneys and those in active concert or participating with them and each of them, from directly or indirectly manufacturing, selling, using, advertising or offering so to do, any washing machine or part thereof infringing Claims 23 and 26, or either of them, of the Snyder patent No. 1,866,779, dated July 12, 1932, or any device embodying or utilizing the same, and particularly the Easy, the A B C and the Thor washing machine (represented in evidence respectively by Plaintiff's Exhibits 1, 73, 80 and 89) and from directly or indirectly

349

selling, using, advertising or offering for sale any devices for utilizing the method of washing fabrics of Claim 38 of said patent, and from in any manner using, employing or advertising said method, or in any wise contributing thereto, and from in any respect infringing upon said Snyder Patent or aiding or abetting or in any way inducing or contributing to the infringement thereof.

350

THIRD: That the plaintiff recover of defendant the profits which it has derived by reason of the aforesaid infringement and the damage which the plaintiff has sustained by reason of said infringement; that this cause be referred to William E. Warland, as Master of this court, to take and state an accounting of said profits and damages and assess the same, and report thereon pursuant to the statutes and the equity rules in such cases made and provided.

FOURTH: That the plaintiff recover its costs in this suit. 351

Dated, October 7, 1935.

MORTIMER W. BYERS,
United States District Judge.

352

Order Granting Leave to File Amendment to Bill of Complaint (Maytag Company v. Hurley Machine Company and Electric Household Utilities Corporation).

(Filed March 19, 1936.)

At a Stated Term of the United States District Court held in and for the Southern District of New York at the Court Rooms of the said Court in the Borough of
353 Manhattan, the 18th day of March, 1936.

Present:

HONORABLE FRANCIS G. CAFFEY,
United States District Judge.

THE MAYTAG COMPANY, Plaintiff, vs. HURLEY MACHINE COMPANY and ELECTRIC HOUSEHOLD UTILITIES CORPORATION, Defendants.	In Equity 81/257.

354

This cause having come on to be heard on motion of plaintiff for reargument following the prior decision of this court sustaining a motion of defendants for an order striking paragraphs II, III and VI from the bill of complaint, and the Court being fully advised in the premises,

It is ORDERED as follows:

Order Granting Leave to File Amendment to Bill of Complaint (Maytag Company v. Hurley Machine Company and Electric Household Utilities Corporation).

355

1. That Paragraphs II and III be stricken from the bill of complaint.

2. That plaintiff have leave to file the amendment to its bill of complaint, of which a copy is hereto annexed, without prejudice to the right of defendants to renew their motion in respect thereto and to move with respect to said bill as so amended.

356

FRANCIS G. CAFFEY,
U. S. D. J.

Plaintiff excepts to this Order.

JOHN F. RYAN,
Solicitor for Plaintiff.

Dated: March 17, 1936.

357

358

Amendment to Bill of Complaint (Maytag Company v. Hurley Machine Company and Electric Household Utilities Corporation).

(Filed Mar. 21, 1936.)

DISTRICT COURT OF THE UNITED STATES,

SOUTHERN DISTRICT OF NEW YORK.

359

THE MAYTAG COMPANY, Plaintiff, vs. HURLEY MACHINE COMPANY and ELECTRIC HOUSEHOLD UTILITIES CORPORATION, Defendants.	In Equity No. 81/257.

Comes now the plaintiff and amends its bill of complaint as follows:

360

By cancelling Paragraph VI thereof, and substituting the following:

VI.

"On or about March 8, 1933, plaintiff filed its Bill of Complaint in equity in the United States District Court, for the Eastern District of New York against the Brooklyn Edison Co., Inc., for infringement of the said Snyder patent No. 1,866,779, by the demonstration, use and sale of various washing

361

machines, comprising the Thor machines, manufactured and sold by the present defendants and complained of in Paragraph VII hereof, the Easy machine, manufactured by the Easy Washing Machine Corporation of Syracuse, New York, and the ABC machine, manufactured by Altorfer Bros. Co. of Peoria, Ill.

362

By answer, duly filed in said suit, issue was joined and numerous defenses asserted, including invalidity of the said Snyder patent and non-infringement thereof by said Thor, Easy and ABC machines, and thereafter a full trial was had on the merits before His Honor Judge Mortimer W. Byers. On or about July 17, 1935, the Court handed down a written opinion, and on or about October 7, 1935, after petition for rehearing had been considered and denied, a decree and findings of fact and conclusions of law were entered, in and by which said patent was held valid and infringed by each of the said washing machines. Duly authenticated copies of the said bill of complaint, answer, opinion, decree and findings and conclusions are ready in Court to be produced. Thereafter an appeal to the Circuit Court of Appeals of the Second Circuit, from the said decree of October 7, 1935, was sought and allowed in accordance with the statute in such case made and provided, which appeal is now pending before the said Circuit Court of Appeals.

363

364 *Amendment to Bill of Complaint (Maytag Company v. Hurley Machine Company and Electric Household Utilities Corporation).*

The defense of the said Brooklyn Edison suit has been at all times conducted and controlled by Washing Machine Associates, an association of which defendants are active members as hereinafter set forth, through attorneys paid by and selected and retained to represent them, in co-operation with at-
365 torneys retained by the present defendants, all with the knowledge of the plaintiff. At no time during the pendency of the said suit did the said Brooklyn Edison Co., Inc., conduct or control the defense thereof, either directly or through attorneys selected or employed by it, and, upon information and belief, it paid none of the expenses of the defense of said suit.

The said Washing Machine Associates is an association of washing machine manufacturers which was organized, prior to the
366 commencement of the said Brooklyn Edison suit and in anticipation of the bringing of suit for infringement of said patent against one or more of the companies comprising such association, for the purpose of collectively contesting the said Snyder patent and plaintiff's rights thereto and thereunder through attorneys employed and paid to conduct and control the defense of any such suit for the benefit of the said Association and each of the members thereof, and with the object of raising funds and applying the same to pay the expenses of defending any

such suit, including the payment of attorneys' fees.

Plaintiff further avers that from the time of the organization of said Washing Machine Associates up to the present time, the defendants herein have been active members thereof, and, by reason of the premises, have had their day in Court with respect to the issues litigated, or which might have been litigated, in the said Brooklyn Edison suit and are now bound by the proceedings, opinions, orders and decrees made and entered in said suit as fully as they would have been had they been parties of record (defendants) in said suit, and, in particular, are estopped to deny the validity of said Snyder patent and infringement thereof by said Thor machines."

THE MAYTAG COMPANY,
By JOHN F. RYAN,
its Solicitor.

Dated, March 20, 1936.

370

Answer (Maytag Company v. Hurley Machine Company and Electric Household Utilities Corporation).

(Filed May 19, 1936.)

UNITED STATES DISTRICT COURT,

SOUTHERN DISTRICT OF NEW YORK.

THE MAYTAG COMPANY, Plaintiff, vs. HURLEY MACHINE COMPANY and ELECTRIC HOUSEHOLD UTILITIES CORPORATION, Defendants.	In Equity No. 81/257.

371

Defendants, for answer to the amended bill of complaint herein, allege and say:

1. Defendants are not informed as to the state in which plaintiff is incorporated, and therefore

372

neither admit nor deny the allegations of the amended bill of complaint with respect to plaintiff's citizenship, habitation, and residence, but leave plaintiff to make such proof thereof as it may be advised. Defendants admit that they are corporations organized and existing under and by virtue of the laws of the State of Illinois, and that they are citizens, inhabitants, and residents of said State with places of business at Chicago, Illinois, and each having an office and a regular and established place of business at 405 Lexington Avenue, New York, N. Y. Defendants deny that they, or either of them, have committed any

Answer (Maytag Company v. Hurley Machine Company and Electric Household Utilities Corporation). 373

acts of infringement of the patent referred to in the amended bill of complaint.

2. Answering Paragraph I of the amended bill of complaint, defendants admit that United States Letters Patent No. 1,866,779 was issued on July 12, 1932, to The Maytag Company, on an application filed June 14, 1922, by Howard F. Snyder, but deny that said Howard F. Snyder 374
was the first, original and sole inventor of the alleged improvements described and claimed in said Letters Patent, or was lawfully entitled to obtain letters patent for said alleged improvements, and deny that said Letters Patent are valid. Defendants are not informed otherwise than by the amended bill of complaint, and therefore deny, that said Howard F. Snyder, by proper assignment in writing, did sell, assign and transfer all right, title and interest in, to and under said alleged improvements, the application therefor, and the letters patent there 375
for, to The Maytag Company, an Iowa corporation, and that thereafter, the said The Maytag Company, the Iowa corporation, did, by proper assignment in writing, sell, assign and transfer all right, title and interest in, to and under said alleged improvements, the application for patent therefor, and the letters patent therefor, to plaintiff The Maytag Company, a Delaware corporation.

3. Answering Paragraph IV of the amended bill of complaint, defendants are not informed otherwise than by the amended bill of com-

plaint, and therefore deny, that plaintiff has been since its issuance, and now is, the sole and exclusive owner of all rights and privileges granted and secured, or intended to be granted and secured, by said Letters Patent No. 1,866,-779, including all right of recovery for past infringement thereof, and that plaintiff has invested and expended large sums of money and
377 been to great trouble and expense in securing said patent and in and about said alleged inventions for the purpose of introducing the same into use, and making the same profitable and useful to the plaintiff and the public. Further answering Paragraph IV of the amended bill of complaint, defendants deny that washing machines utilizing the said alleged improvements embody a radically new and distinctive construction and principle of operation, and deny all of the other allegations contained in said Paragraph IV.

378

4. Defendants deny all of the allegations contained in Paragraph V of the amended bill of complaint.

5. Answering Paragraph VI of the amended bill of complaint, defendants admit that on or about March 8, 1933, plaintiff filed a bill of complaint in equity in the United States District Court for the Eastern District of New York against Brooklyn Edison Company, Inc., for infringement of said Patent No. 1,866,779 by the demonstration, use and sale of various washing machines, including a washing machine

379

made and sold by defendants; that as a result of said suit a decree was entered holding certain claims of said patent valid and infringed by each of the accused washing machines; and that thereafter an appeal was taken from said decree to the Circuit Court of Appeals for the Second Circuit, which said appeal is now pending and undetermined before said Circuit Court of Appeals. On information and belief, defend- 380
ants deny all of the other allegations contained in said Paragraph VI of the amended bill of complaint.

6. Defendants, answering Paragraph VII of the amended bill of complaint, deny that they have infringed upon said Letters Patent No. 1,866,779 and specifically deny that, since the issuance of said Letters Patent and prior to the commencement of said suit, they have deprived plaintiff of profits to which plaintiff would be entitled, or have made or are making, causing 381
to be made, selling or using washing machines embodying the alleged improvements described and claimed in the said Letters Patent, and deny all of the other allegations contained in the said Paragraph VII of the amended bill of complaint.

7. Defendants, further answering, aver that the alleged improvements described in the said Letters Patent and attempted to be patented thereby, and all material and substantial parts thereof, fail to embody any substantial variation or change from that which existed in the prior

art at the time of the alleged invention or discovery thereof by said Snyder, and did not involve the exercise of the inventive faculty or constitute the subject matter of invention proper to be secured by the grant of Letters Patent of the United States within the meaning or intent of the patent laws relating thereto.

383 8. Defendants, further answering, aver that the Letters Patent No. 1,866,779 were and are wholly invalid and void, because the alleged inventions, improvements and discoveries described and claimed therein, and all material and substantial parts thereof had been published, described and patented prior to the alleged inventions, improvements and discoveries thereof by said Snyder, or more than two years prior to the filing date of the application for said Letters Patent, in and by the following specified Letters Patent and publications, to wit:

384

UNITED STATES PATENTS.

Patent No.	*Patentee*	*Date of Issue*
No number	Bolton	Aug. 2, 1808
17,790	Hewit	July 14, 1857
61,067	Hittel	Jan. 8, 1867
74,052	Covel	Feb. 4, 1868
83,145	Ferguson	Oct. 20, 1868
94,005	King, *et al.*	Aug. 24, 1869
95,565	Covel	Oct. 5, 1869
95,825	Moore, *et al.*	Oct. 12, 1869
98,148	Cindel	Dec. 21, 1869
100,253	Brown	Mar. 1, 1870

Answer (Maytag Company v. Hurley Machine Company and Electric Household Utilities Corporation). 385

Patent No.	*Patentee*	*Date of Issue*
101,622	Hull	Apr. 5, 1870
102,046	Russell, *et al.*	Apr. 19, 1870
106,853	Morse	Aug. 30, 1870
112,603	King	Mar. 14, 1871
113,762	Groat	Apr. 18, 1871
114,305	Kimball	May 2, 1871
114,873	Steele	May 16, 1871
131,582	Wheeler	Sept. 24, 1872
131,629	Runkle	Sept. 24, 1872
143,225	Davis	Sept. 30, 1873
178,525	Herr	June 13, 1876
235,073	Crawford	Dec. 7, 1880
246,188	Murken	Aug. 23, 1881
266,975	Crawford	Nov. 7, 1882
361,163	Jacoby	Apr. 12, 1887
380,445	Mears, *et al.*	Apr. 3, 1888
443,778	Mears, *et al.*	Dec. 30, 1890
444,421	Christman	Jan. 13, 1891
480,532	Van Derzee	Aug. 9, 1892
544,996	Schultz, *et al.*	Aug. 20, 1895
547,805	Pohl & Linz	Oct. 15, 1895
671,382	Kellogg	Apr. 2, 1901
738,560	Miller	Sept. 8, 1903
791,756	Dorval	June 6, 1905
807,508	Shaw	Dec. 19, 1905
832,787	Foster, *et al.*	Oct. 9, 1906
864,591	Adams	Aug. 27, 1907
866,612	Allen	Sept. 24, 1907
923,101	Adams	May 25, 1909
927,069	Phillippy	July 6, 1909
944,285	Shank	Dec. 28, 1909
1,096,867	Shaw, *et al.*	May 19, 1914

386

387

388 *Answer (Maytag Company v. Hurley Machine Company and Electric Household Utilities Corporation).*

Patent No.	*Patentee*	*Date of Issue*
1,109,273	Yazel	Sept. 1, 1914
1,111,408	Schneible	Sept. 22, 1914
1,118,210	Mills, *et al.*	Nov. 24, 1914
1,155,107	Staley	Sept. 28, 1915
1,157,222	Hoffman	Oct. 19, 1915
1,240,826	Davis	Sept. 25, 1917
1,250,810	Dazey	Dec. 18, 1917
389 1,253,536	Schneider	Jan. 15, 1918
1,391,214	Snyder	Sept. 20, 1921
1,393,969	Ritz, *et al.*	Oct. 18, 1921
1,430,322	Rainalter	Sept. 26, 1922
1,496,305	Doughty, *et al.*	June 3, 1924
1,644,959	Snyder	Oct. 11, 1927

BRITISH PATENTS.

Newton, No. 2,577, of 1869
Hanna, No. 19,027, of 1889
Jardine, No. 18,202, of 1891

390

FRENCH PATENTS.

Schaede, No. 329,929, Aug. 8, 1903
Rissman, No. 342,302, Sept. 5, 1904
Henin, *et al.*, No. 363,514, Aug. 2, 1906
Versaille, *et al.*, No. 398,798, June 14, 1909
Hershey, No. 470,923, Oct. 6, 1914

GERMAN PATENTS.

Holzman, No. 3,665, of 1877
Muhlmann, *et al.*, No. 62,444, of 1891
Gotze, No. 120,847, of 1900

SWISS PATENTS.

Schaede, No. 27,153, of 1902
Diem, No. 24,545, of 1902
Rissman, No. 27,020, of 1902

PUBLICATIONS.

Zeitschrift des Vereines deutscher Ingenieure, Vol. 50, No. 5, Feb. 3, 1906, pp. 158, 159;
Deutsche Landwirtschaftliche Presse, Vol. 32, No. 59, July 26, 1905, p. 508;
1909 Catalogue, Roediger & Richter, Elze (Hannover), Germany;
January 1913 Catalogue, Gebruder Unkel, Dusseldorf, Germany;

and also in other patents and publications which defendants are informed and believe are in existence, but which defendants have not yet ascertained and which, when known and located, defendants pray leave to insert herein by amendment.

9. Defendants, further answering, aver that the said Letters Patent No. 1,866,779 were and are wholly invalid and void, because said Snyder was not the first, original and sole inventor or discoverer of the alleged inventions, improvements or discoveries described and claimed therein, since all material and substantial parts thereof were, prior to the alleged invention thereof by said Snyder, known and used by others in this country, to wit:

394 *Answer (Maytag Company v. Hurley Machine Company and Electric Household Utilities Corporation).*

The patentees of the United States Letters Patent listed in Paragraph 8 hereof;

Haag Brothers Company, Peoria, Illinois;
Richmond Cedar Works, Richmond, Virginia;
Nineteen Hundred Washer Company, Binghamton, New York;
Voss Brothers Manufacturing Company,
395 Davenport, Iowa;
Whirlpool Manufacturing Company, Philadelphia, Pennsylvania;
Miller Manufacturing Company, Myersdale, Pennsylvania;
The Michigan Washing Machine Company, Muskegon, Michigan;
Kalamazoo Manufacturing Company, Kalamazoo, Michigan;
The Victor Manufacturing Company, Leavenworth, Kansas;
Simon E. Schroeder and the S. E. Schroeder
396 Manufacturing Company, Minier, Illinois;

and by other parties whose names are not now known to defendants, but which, when ascertained, defendants pray leave to insert herein by amendment.

10. Defendants, further answering, aver that the said alleged inventions and improvements of said Letters Patent No. 1,866,779, and all material and substantial parts thereof were in public use and on sale in this country, prior to the alleged invention thereof by said Snyder, by the patentees of the United States Letters Patent

397

listed in Paragraph 8 hereof, at the places of residence of such patentees as stated in said patents, respectively; and by

Haag Brothers Company, Peoria, Illinois;
Richmond Cedar Works, Richmond, Virginia;
Nineteen Hundred Washer Company, Binghamton, New York;
Voss Brothers Manufacturing Company, Davenport, Iowa;

398

Whirlpool Manufacturing Company, Philadelphia, Pennsylvania;
Miller Manufacturing Company, Inc., Myersdale, Pennsylvania;
The Michigan Washing Machine Company, Muskegon, Michigan;
Kalamazoo Manufacturing Company, Kalamazoo, Michigan;
The Victor Manufacturing Company, Leavenworth, Kansas;
Simon E. Schroeder and the S. E. Schroeder Manufacturing Company, Minier, Illinois;

399

and by other parties whose names are not now known to defendants, but which, when ascertained, defendants pray leave to insert herein by amendment.

11. Defendants, further answering, aver that the claims in said Letters Patent No. 1,866,779, which purport to be directed to methods or processes, are invalid, because they cover merely the function of a machine and not methods or processes proper to be patented under the patent laws of the United States.

400 *Answer (Maytag Company v. Hurley Machine Company and Electric Household Utilities Corporation).*

12. Defendants, further answering, aver that the description of the alleged improvements of said Letters Patent No. 1,866,779 is not in such full, clear concise and exact terms as to enable any person skilled in the art or science to which they appertain or with which they are most closely connected to make, construct, compound and use the same.

401

13. Defendants, further answering, aver that the claims of said Letters Patent No. 1,866,779 are ambiguous, uncertain, indefinite, misleading and obscure, and fail to distinctly point out and distinctly set forth the improvements or combinations which the said Snyder claims as his invention or discovery as required by the patent laws of the United States.

14. Defendants, further answering, are informed and believe, and therefore aver, that
402 while the application for said Letters Patent No. 1,866,779 was pending in the United States Patent Office, the applicant therefor so limited and confined the claims of the said application under the requirements of the Commissioner of Patents that the plaintiff herein cannot now seek for or obtain a construction for said claims sufficiently broad to cover apparatus heretofore used by defendants.

15. Defendants, further answering, aver that on September 2, 1924, there was issued to the plaintiff a patent No. 1,506,783 on the application of said Snyder; that from the date of the

403

issuance of said patent and until the date of the issuance of the patent No. 1,866,779 here in suit, the plaintiff held said patent No. 1,506,783 out to the public and to its customers as being embodied in the washing machine sold by it, and afterwards, upon the issuance of patent No. 1,866,779 here in suit, likewise represented to the public and its customers that the same washing machine by it manufactured and sold 404
embodied said letter patent; that by reason of the matters appearing in the said patents and the said conduct, the said patent No. 1,866,779 is void and the plaintiff may not equitably enforce the same against these defendants.

16. Defendants deny the equity of plaintiff's amended bill of complaint and aver that plaintiff is not entitled to an injunction, or to any accounting of profits and damages, or to any recovery whatever against the defendants as prayed for in the amended bill of complaint. 405

WHEREFORE, defendants pray that the amended bill of complaint be dismissed with costs.

HURLEY MACHINE COMPANY
and
ELECTRIC HOUSEHOLD UTILITIES CORPORATION,
By PENNIE, DAVIS, MARVIN & EDMONDS,
Solicitors for Defendants.

406

Second Amendment to Bill of Complaint (Maytag Company v. Hurley Machine Company and Electric Household Utilities Corporation).

(Filed March 2, 1937.)

UNITED STATES DISTRICT COURT,

SOUTHERN DISTRICT OF NEW YORK.

THE MAYTAG COMPANY, 407 Plaintiff, vs. HURLEY MACHINE COMPANY and ELECTRIC HOUSEHOLD UTILITIES CORPORATION, Defendants.	In Equity No. 81-257.

Comes now the plaintiff, The Maytag Company, and amends its Bill of Complaint filed herein October 21, 1935, as amended March 21, 1936, in the following particulars, to-wit:

408 By adding at the end of Paragraph V an additional paragraph as follows:

"*V-A.*

"In said Letters Patent No. 1,866,779 plaintiff having just become aware of reason to believe that the said patentee Howard F. Snyder, through inadvertence, accident or mistake, and without any fraudulent or deceptive intention or willful default claimed as his invention or discovery more than that of which he was the first inventor or

Second Amendment to Bill of Complaint (Maytag Company v. Hurley Machine Company and Electric Household Utilities Corporation).

discoverer, thereupon, on or about February 20, 1937, without unreasonable neglect or delay made and entered a disclaimer in writing in the United States Patent Office of Claims 1 and 38 of said Letters Patent, avering therein that the subjects matter of the remaining claims of said Letters Patent are the invention of said Snyder and are a material and substantial part of the thing patented and are definitely distinguishable from the matter disclaimed. A copy of said disclaimer is attached hereto and made a part hereof and a duly certified copy thereof is ready here in court to be produced."

By inserting in the paragraph numbered VII of said original Bill of Complaint in line 11, after the words and figures "dated July 12, 1932" the following: "*particularly claims 23, 26 and 29.*"

THE MAYTAG COMPANY,
By WALLACE R. LANE,
its Attorney.

412

Disclaimer Annexed to Second Amendment to Bill of Complaint.

IN THE
UNITED STATES PATENT OFFICE.

In the matter of
Letters Patent No. 1,866,779
Issued July 12, 1932
To Howard F. Snyder
For Washing Machines

413 To the Honorable Commissioner of Patents:

Your Petitioner, The Maytag Company, a corporation of Delaware, having a place of business at Newton, Jasper County, Iowa, represents that Letters Patent of the United States No. 1,866,779, were granted to it, as assignee of Howard F. Snyder, on July 12, 1932, for a certain improvement in Washing Machines, and that it is now the sole owner of the entire right, title and interest in and to said Letters Patent; that it has just become aware of reasons to be-
414 lieve that through inadvertence, accident or mistake, and without any fraudulent or deceptive intention or willful default, the patentee claimed more than that of which he was the original or first inventor or discoverer in the following claims, to-wit:

> "1. The method of cleansing fabrics in a tub consisting in agitating a washing fluid in such a way as to create positively driven violently flowing currents moving away from and back to the plane of the source of agitation, and also around the tub

in one direction in a plane approximately parallel with the plane of agitation, and then causing it to move away from and back to the plane of the source of agitation and in a reverse direction in a plane approximately parallel with the plane of agitation so as to bodily and forcibly cause the fabrics in the tub to travel in substantially the same paths as the fluid, whereby thorough cleansing of the fabric is effected without substantial contact with the rubbing surfaces.

"38. The method of washing fabrics by forcing cleansing liquid through and around them while substantially suspended by the action of the fluid, as distinguished from pulling fabrics through the fluid against scrubbing corrugations, or otherwise scrubbing them by mechanical means, comprising immersing the fabrics in a washing fluid in a container, then vigorously and rapidly impelling the washing fluid in one and then in an opposite outward circulatory direction away from the plane of the source of impulsion and through the fabrics and circumferentially along the interior of the container in rapid succession, and causing these violently opposed currents of fluid to meet and flow inwardly and toward the central portion of the container, and toward the source of impulsion thereby substantially suspending the fabrics in the fluid and cleansing them while thus suspended."

418 *Disclaimer Annexed to Second Amendment to Bill of Complaint.*

And your Petitioner therefore hereby enters its disclaimer of the above claims of said Letters Patent.

Your Petitioner avers that the subjects matter of the remaining claims of said Letters Patent are the invention of said Snyder and are a material and substantial part of the thing patented, and are definitely distinguishable from the matter herein disclaimed.

419 Your Petitioner herewith tenders the sum of Ten ($10.00) Dollars to be applied as the statutory fee for entering this disclaimer.

Signed at Newton, in the County of Jasper, and State of Iowa, this 20th day of February, 1937.

THE MAYTAG COMPANY,
By (signed) ROY A. BRADT.

ATTEST:

420 (signed) E. L. NELSON,
Secretary.

WITNESS:

(signed) E. G. HIGDON,
(signed) GEO. M. UMBREIT.

421

Stipulation re Use of Testimony and Exhibits from Brooklyn Edison Case.

UNITED STATES DISTRICT COURT,

SOUTHERN DISTRICT OF NEW YORK.

THE MAYTAG COMPANY, Plaintiff, vs. HURLEY MACHINE COMPANY and ELECTRIC HOUSEHOLD UTILITIES CORPORATION, Defendants.	In Equity No. 81-257.

422

IT IS HEREBY STIPULATED AND AGREED by and between the parties hereto through their respective counsel that the testimony given by the following named witnesses and the exhibits received in evidence in connection therewith in the case of The Maytag Company vs. Brooklyn Edison Co., Inc., lately pending in the United States District Court for the Eastern District of New York, Equity No. 6888, as appears from the corrected typewritten transcript thereof, may be offered and used by either party in this case with the same force and effect as if taken and received herein, the right to urge and request the Court to rule on any objections noted in the said typewritten transcript being reserved by both parties:

423

George L. Miller,
William J. Elliott,
Joe Stephen,

424 *Stipulation re Use of Testimony and Exhibits from Brooklyn Edison Case.*

David L. Mooar,
Roy A. Bradt,
John E. Herbst,
Carl V. Thornton,
Frederick F. Mason,
Watson A. Osgood, and
Laura Wensley.

IT IS FURTHER STIPULATED AND AGREED that
425 either party may use for this purpose, the copy furnished it by the Court Reporter during the trial of said case, The Maytag Company vs. Brooklyn Edison Co., Inc.

Dated, New York, N. Y., April 22, 1937.

JOHN F. RYAN,
Counsel for Plaintiff.

PENNIE, DAVIS, MARVIN & EDMONDS,
Counsel for Defendants.

426 It is So Ordered:

April 23, 1937.

JOHN C. KNOX,
U. S. D. J.

427

Narrative Statement of the Evidence.

UNITED STATES DISTRICT COURT,

SOUTHERN DISTRICT OF NEW YORK.

THE MAYTAG COMPANY, a corporation, Plaintiff, vs. EASY WASHING MACHINE CORPORATION, Defendant.	In Equity No. 75-202.

428

THE MAYTAG COMPANY, a corporation, Plaintiff, vs. HURLEY MACHINE COMPANY, and ELECTRIC HOUSEHOLD UTILITIES CORPORATION, Defendants.	In Equity No. 81-257.

429

Before:

HON. ALFRED C. COXE,
District Judge.

New York, May 17, 1937.

Mr. Loftus: It is hereby stipulated and agreed by and between the parties hereto, through their respective attorneys, as follows:

That the case of The Maytag Company vs. Hurley Machine Company and Electric Household Utilities Corporation, now pending in this

Court as Equity No. 81-257, shall be tried concurrently with the case of The Maytag Company vs. Easy Washing Machine Corporation now pending in this Court as Equity No. 75-202 and that the evidence adduced and offered in either case shall be part of the record of both cases.

In the Easy case, it is agreed heretofore in writing as follows:

In order to save time and expense, it is hereby stipulated and agreed by and between the
431 parties hereto, through their respective attorneys, as follows:

First: That both plaintiff and defendant are corporations duly organized and existing as alleged in the Bill of Complaint.

Second: That the citizenship, inhabitancy and residence of plaintiff and defendant are as stated in the Bill of Complaint.

Third: That defendant was duly notified with
432 respect to said patent and its alleged infringement thereof by registered letter dated July 14, 1932, received July 18, 1932, and that the attached is a true copy of said letter-notice. Counsel for plaintiff having exhibited to counsel for defendant a washing machine purchased from defendant, Syracuse Washing Machine Corporation (by change of name, Easy Washing Machine Corporation) at its place of business at 270 Madison Avenue, in the City of New York, State of New York, on or about March 1st, 1933, said machine being Model 3F Easy Washing Machine, Serial No. 242,634, it is stipulated and agreed that said machine may be marked, of-

fered and received in evidence as "Plaintiff's Exhibit, Defendant's Washing Machine," it being further agreed that said machine was sold by defendant as before stated and at the time and place given.

"Syracuse Washing Machine Corp.,
Syracuse, New York.

Gentlemen:

434 Our client, The Maytag Company, has informed us that you have been and are engaged in the manufacture and sale of washing machines in violation of the Howard F. Snyder United States Letters Patent No. 1,866,779, dated July 12, 1932, issued to it, and which is its exclusive property. It has requested us to notify you in its name of this infringement, and request you to promptly desist from further infringement, and to pay over to it all profits, gains and advantages which 435 you have derived from such manufacture and sale, as well as the damages which our client has suffered by reason thereof, and in default thereof, it has instructed us to take steps to fully protect its rights in the premises.

If you desire to continue the sale and/or manufacture of said patented washing machines an application for license under this patent, if made within ten days, will be given consideration.

Our client is desirous of avoiding litigation, if possible, and if you desire to

discuss the matter with that end in view, we shall be glad to see you here. Our client insists upon promptly knowing your attitude. Kindly advise.

Yours very truly,

(Sgd.) PARKINSON & LANE."

It is further stipulated that in the Hurley
437 Machine Company and Electric Household Utilities Corporation case as follows:

1. That both plaintiff and defendants are corporations duly organized and existing as alleged in the bill of complaint.

2. That the citizenship, inhabitancy and residence of plaintiff and defendants are as stated in the bill of complaint.

3. That defendants were duly notified with respect to said patent and their alleged infringe-
438 ment thereof by registered letter dated July 14, 1932, received on or about July 16, 1932, and that the attached is a true copy of said letter-notice.

4. Counsel for plaintiff have exhibited to counsel for defendants a Thor Washer, which is marked Plaintiff's Exhibit 4, it is conceded by defendants' counsel that the defendants sold that machine and others like it from their regular established place of business in New York subsequent to the grant of the patent in

suit and prior to the filing of the bill of complaint herein.

"Hurley Machine Company,
22nd St. and 54th Avenue,
Chicago, Illinois.

Gentlemen:

Our client, The Maytag Company, has informed us that you have been and are 440
engaged in the manufacture and sale of washing machines in violation of the Howard F. Snyder United States Letters Patent No. 1,866,779, dated July 12, 1932, issued to it, and which is its exclusive property. It has requested us to notify you in its name of this infringement, and request you to promptly desist from further infringement, and to pay over to it all profits, gains and advantages which you have derived from such manufacture and sale, as well as the damages which 441
our client has suffered by reason thereof, and in default thereof, it has instructed us to take steps to fully protect its rights in the premises.

If you desire to continue the sale and/or manufacture of said patented washing machines an application for license under this patent, if made within ten days, will be given consideration.

Our client is desirous of avoiding litigation if possible, and if you desire to discuss the matter with that end in view, we

shall be glad to see you here. Our client insists upon promptly knowing your attitude.

Kindly advise.

Yours very truly,

(Sgd.) PARKINSON & LANE."

PRIMA FACIE PROOFS.

443 Mr. Loftus: I offer in evidence copy of the Patent in Suit as Plaintiff's Exhibit 1, and certified copy of the disclaimer filed February 23, 1937, as Plaintiff's Exhibit 2.

Mr. Loftus: The Easy machine referred to in the stipulation we offer as Plaintiff's Exhibit 3.

Mr. Loftus: The drawings thereof, which I will couple up later, we offer as Plaintiff's Exhibit 3-A.

Mr. Loftus: The Thor machine as Plaintiff's Exhibit 4.

(Received in evidence as Plaintiff's Exhibits 1,

444 2, 3, 3A and 4.)

WALTER BONES, called on behalf of plaintiff.

Direct Examination by Mr. Loftus:

My name is Walter Bones; residence, Minneapolis, Minnesota. I am Branch Manager of The Maytag Company, Minneapolis. I started with The Maytag Company in 1906, at which time its name was Parsons Band Cutter & Self-Feeder

Company, manufacturing self-feeders for threshing machines, corn shredders and grain cutters. It started manufacturing the dolly type hand washing machine in 1908. Of the other types of washing machines which it made and sold prior to 1920 were the dolly type electric, dolly type belt power, dolly type multi-motor (gas engine), and the cylinder type.

From 1906 to 1920 I was familiar with the types of washing machines sold by the industry and in competition. Howard F. Snyder was with 446
The Maytag Company in 1906 when I started and remained continuously with the company until he died in 1927.

Q. Please tell the Court, or describe to the Court briefly, the different types of machines and methods employed for household washing of clothes prior to 1920, and in answering this question you may refer to any charts you may have, and in doing so point out what if any objections there were as to these different types and different methods employed in these old washing machines. 447

Mr. Edmonds: I want to offer an objection to this question in the interest of confining the proceedings here to what I consider to be the only appropriate channels. The witness is asked about types of washers. He has got a lot of drawings there showing types other than the only type we are interested in here, and we can take hours, days, in fact—

The Court: I am rather wondering whether the record in the other case won't cover this part of it. Certainly you do

not mean to have me sit here and travel over the same ground again.

Mr. Loftus: This will be very briefly covered. It is merely to get before the Court the picture of what we had in the prior art commercially.

The Court: Do not these exhibits, which have been stipulated in evidence, show that already?

Mr. Loftus: No, your Honor, not yet.

449 The Court: I should almost think that the drawings themselves tell their own story.

Mr. Edmonds: We will offer to stipulate anything to cut this out. Here are a couple of dozen sheets of these drawings.

The Court: I will let him answer briefly.

Describing the different types of machines and methods employed for household washing of clothes prior to 1920, sheet No. 1 shows the hand
450 rub board, where the operator rubs the clothes over the board. No. 2 shows the rocker hand-operated rub board type, where the clothes are rubbed between the two rubbing parts of the machine. No. 3 is the same type as No. 2. No. 4 is a disc rub board type hand-operated.

Sheet No. 5 shows a hand-operated rubbing board type. No. 6 is the same as No. 5. No. 7 is the same as Nos. 5 and 6. No. 8 is a rub board type where the tub is oscillated instead of the rubbing disc on the inside of the tub. No. 9 is a dolly type with a corrugated tub, where the clothes are rubbed against the corrugations in the tub, bottoms and sides. No. 10 is the same

as No. 9. No. 11 is the same as Nos. 9 and 10. No. 12 is the same as Nos. 9, 10 and 11. No. 13 is the same as the other four dolly types. No. 14 is the first Maytag power-driven, belt power-driven washer of the dolly type. No. 15 is the dolly type with a flanged peg dolly, water power.

Sheet No. 16 shows two different types of dollies. Page No. 17 shows an oscillator where the clothes and water are placed inside of the tub and it rocks back and forth, turning action. No. 452
18 shows a part of the same machine. No. 19 is a cylinder type machine where the clothes are placed inside of the cylinder, which revolves. Some cylinders reversed, some run continuously in one direction. No. 21 is a vacuum type with the plungers that work up and down on top of the clothes.

All of these types were used commercially prior to 1920.

Q. Based on your own experience, tell the Court briefly what, if any, were the outstanding objections to those different types, of the gen- 453
eral method or plan of operation of each of those.

Mr. Edmonds: I offer the objection that this is going outside of the scope of the inquiry here. We do not have to figure what were the merits and demerits of the types other than the types that are under consideration.

The Court: I will let him state briefly.

Referring to the outstanding objections to those different types of machines, one of the objections to all the machines was not washing

454 *Walter Bones—For Plaintiff—Direct.*

clean, and another was that they were very severe on the clothes. We always considered the dolly type the best machine. It would wash clothes faster and better than any other washing principle up to 1922.

Q. Why were they severe on the clothes? What is the plan of operation of each of those? A. Rubbing, jerking, pulling the clothes back and forth. The cylinder types would tangle.

The machines were slow in washing and many
455 housewives had tried the machines and discarded them and gone back to the old hand board, rubbing the clothes. Charts offered and received in evidence as Plaintiff's Exhibit 5. The Maytag Company prior to 1920 manufactured and sold the dolly types (4 peg wood dolly) and the cylinder types.

Referring to the drawing of the Snyder patent in suit, Fig. 1, The Maytag Company started manufacturing and selling commercially a machine as shown in that figure in 1922. It was known as Model 80, Maytag Gyrafoam washer.

456 I think it was in March, 1922, that we received the first machine in Minneapolis. I saw the first one in Milwaukee, Wisconsin.

Q. Please tell the Court briefly the experience you had in first introducing the Maytag Gyrafoam machine, to which you have just referred. What did the trade think of it; what difficulties did you have to overcome? A. We had been selling the dolly type machine and would run the machines about 20 to 30 minutes to do the average washing, that is the average tub full. Mr. Maytag shipped me the first machine by express and asked us to try it out. We did in putting on a home demonstration.

Mr. Edmonds: I would like to offer an objection to this. This is a discussion of what happened after the machine was put on the market. We are concerned here with whether or not the machine was novel at that time, and in that connection we are concerned with what preceded it.

The Court: I should think the reception it had with the trade would be the only material thing there.

458

We demonstrated the machine and became very much discouraged with it. The clothes were badly torn and after the demonstration I wired Mr. Maytag and told him of our experience.

Mr. Edmonds: Isn't this outside of what your Honor indicated?

The Court: I should think so. You are now talking about the Snyder machine, which is the machine according to the patent in suit?

The Witness: Yes, your Honor.

459

The Court: And the difficulties you had with respect to putting it on the market?

The Witness: Yes.

The Court: Well, I am perfectly willing to allow you to give those difficulties, but I do not see that the conversations that you had and the telephone and telegraph communications with Mr. Maytag is going to help it very much. All right, go ahead.

Mr. F. L. Maytag and Mr. Snyder came to Minneapolis to assist in putting on a demonstration. We had selected garments that were fragile,

rag rugs, old lace curtains in order to give the machine an acid test. Instead of washing the lace curtains for fifteen or twenty minutes or longer, Mr. Snyder washed them in about two minutes, and they came out perfectly clean and without being torn, and we had the same experience in washing rag rugs and other garments.

He sold us on the machine to the place where we found it necessary to put on home demonstra-
461 tions to show the speed of the washing as against the old dolly type, and from that day on we had no trouble with the machine in making sales over the dolly and cylinder types that we had built before.

Demonstrations were used in pretty close to 100% of all sales. We went into towns and worked with the dealers, men, and trained them in putting on demonstrations; went into the homes where they did not have confidence in washing machines, would not use a washing machine, and the machine through actual demon-
462 stration sold itself. That is where the slogan originated, "If it does not sell itself, do not keep it."

Q. What difficulties, if any, did you encounter from the manufacturers of other washing machines, particularly during the first few years while you were introducing the Snyder Gyrafoam machine? What attack, if any, did they make on this type of washing machine?

Mr. Edmonds: It seems to me the difficulties with the men in competition have nothing to do with the issues here. We object to this.

The Court: It is all background or color, and I suppose it has to do with commercial success.

Referring to difficulties encountered from manufacturers of other machines when we were introducing the Snyder Gyraform machine, it was talked of as being an ensilage cutter, a spaghetti machine, a freak, but in the face of all that wherever we showed it demonstrated the machine, as I oftentimes used to say at a sales 464
meeting, it was like starting a fire, the more competition fanned it the more it spread to the place where they were crowded out of the field.

We sold the Maytag Gyrafoam machine 100% immediately after its introduction and discontinued all other models. The Minneapolis branch has sold about 600,000 of these machines, and close to 3,000,000 have been sold from the factory. As to what that would amount to in dollars, that would be a guess on my part. They were sold at different prices. The average selling price when we first brought it out was $139. 465
I think the power driven peg dolly type which was next best type prior to that time was selling for about $80.

Witness identifies various models of Gyrafoam machines, including the first Model 80 machines ever built with the low gyrator. The next is the Model 80 with the high center post gyrator put out in 1925. Model 30 is our present model, and Model 15 is a round porcelain tub machine.

The witness then proceeded to put clothes in the Maytag old peg dolly machine to demonstrate it. Machine offered in evidence as Plaintiff's Exhibit 6, Maytag peg dolly machine.

466 *Walter Bones—For Plaintiff—Direct.*

I put in six towels and operated the machine, which shows that the dolly peg hits the garments and pulls them back and forth through the water. You can see the operation.

In the cylinder machine you put the clothes inside the cylinder and lock it. This is not in running order. It has boards that pick up the clothes and drop them in the water. The result is a lot of tangling and pulling of the garments. The cylinder machine offered in evidence as
467 Plaintiff's Exhibit 7.

Mr. Edmonds: I wish to repeat the objection that all of this refers to matters with which we have no concern in this suit. There are in this art some 20 different types of washing machines, and the cylinder machine is one of those types; another type is called the agitator type, and that is the only type we have any concern with in this suit at all. So I say that all of this time spent on cylinder oscillator machines and various other types, in
468 fact all other types than the agitator type, is just a useless waste of time.

The Court: Well, I do not think it will take very long.

Witness refers to a vacuum cup machine. The clothes are laid on the bottom of the tub and the vacuum cups work on the top of the clothes, stomping up and down. The vacuum cup machine offered in evidence as Plaintiff's Exhibit 8.

Q. Do you have here one of the old rubboard, overhead dolly type machines, as shown in the Davis patent? A. In raising the lid on this machine, it is necessary—

Q. You had better answer my question. Have you such a machine there? A. Yes, sir.

Q. Will you please explain it to the Court?

Mr. Edmonds: Do you mean to suggest by this question that this is a machine made by the company that Davis worked for?

Mr. Loftus: Absolutely, I will connect that up.

Mr. Edmonds: That is a duplicate of 470
the one we offered in evidence at first as 2-A?

Mr. Loftus: There is no difference in any respect, except it has a different cover.

Q. (Read by stenographer.) (Continuing): And operate it. A. In opening the lid on this machine you have to lift the lid and the washing disc. The tub is filled with water. On closing the lid and locking the lid, the washing disc is floating on top of the water. Well, now, I will connect it with the power and throw the ma- 471
chine into gear. You can now see the disc begin to go down in the water, pulling itself to the bottom of the tub.

Q. Put some clothes in the tub and show the Court how that machine operates. It is now running with water only. A. Give me a couple of bundles. The rubbing disc, instead of floating on top of the water, pulls down into the water and works close to the bottom.

Q. Describe the disc briefly. A. It is a wood disc.

Q. What is on the bottom, if anything? A. Cleats, rubbing cleats or slats; throwing the ma-

chine out of gear you can see the disc comes to the top, floats up.

Q. Now, will you put some clothes in that same machine and operate it, please? A. We will now place in the tub 24 towels and close the lid, and notice that the rubbing disc is floating on top of the water, but as soon as the machine is thrown in gear it begins to rub those garments and begins to go down, rubbing the garments.

473 The Court: It does not seem to want to go down.

The Witness: You can see the discs pulling the towels back and forth through the water the same as the dolly machine does.

Mr. Edmonds: How long have you operated the machine? You have now stopped it. How long have you operated it?

Mr. Loftus: If you want to cross examine, do it later.

Mr. Edmonds: No, but you did not time
474 it.

The Witness: Probably two or three minutes.

Mr. Edmonds: And it is a fact that the disc stayed on the surface throughout the operation up to the time that you stopped it. That is a fact, isn't it?

The Witness: It is what?

Mr. Edmonds: Stayed at the surface of the water?

The Witness: It pulled it down in the water.

Mr. Edmonds: Is it down now?

The Witness: It is not covered as much

now as it was a while ago. Let it run a while and it will go down.

Mr. Edmonds: How long will you have to run it to let it go down?

The Witness: The length of time that it takes to wash the garments, about 20 to 30 minutes.

Mr. Edmonds: All right, we will let that run for 20 minutes and see how far down the disc goes.

Mr. Loftus: You can do that on cross 476
examination.

Mr. Edmonds: We can let it run for 20 minutes right now. Please note on the record that counsel for plaintiff stopped the operation of the machine after a couple of more minutes, at the Court's suggestion.

The Court: It now being ten minutes past one.

The witness then proceeded to operate Plain- 477
tiff's Exhibit 9, Model 80, the first machine Maytag built of the Gyrafoam type. The witness placed one towel in the water to show the travel of the water currents, going upward at the bottom, up the side wall, in at the top, down at the center, plainly showing the roll over zone. The witness then placed eleven additional towels in the tub. It shows the machine has a different water action than any of the machines we have so far demonstrated. This machine was built in 1922 when they started in production for the sales organization. The machine, Plaintiff's Exhibit 10, is similar to Plaintiff's Exhibit 9 with the exception that it has the center post, the

action is just the same. There is a further difference in that the gyrator is recessed in the bottom of the tub, whereas the other one is not. The shape of the tub on the outside is the same. Offered in evidence as Plaintiff's Exhibit 10.

Our model 15 operates just the same as the other machines. It is a round tub machine. Offered in evidence as Plaintiff's Exhibit 11.

Witness was requested to operate both the Thor machine, Plaintiff's Exhibit 4, and the
479 Easy machine, Plaintiff's Exhibit 3, and compare the operation with the operation of the Maytag Gyrafoam machines, Plaintiff's Exhibits 9, 10 and 11. Six towels were placed in the Thor and Easy machines and both machines have the same roll over, the clothes being suspended in the water while washing. The Maytag Company, and the Hurley and Easy Company give instructions to keep on feeding clothes in the machine when you are loading the tub as long as the clothes have a free roll over in the water. When they reach the point where they do not have a
480 free roll over, the machine is overloaded.

(Plaintiff's Exhibits 6, 7, 8, 9, 10 and 11 received in evidence.)

From my experience in the sale and use of the Maytag Gyrafoam washer such as Plaintiff's Exhibits 9, 10 and 11, the outstanding advantages over the prior machines were that it washed clean which the other machines would not do and in less time. We usually figured the time from two to ten minutes on the average tub of clothes with the Gyrafoam, whereas with the old machines we used to figure from fifteen to twenty minutes.

The Gyrafoam would handle all kinds of clothes, do the entire wash—lace curtains, wool blankets, rag rugs, heavy garments, overalls and jackets, and it would do an equally good job on all, and it was a machine you could get into a home and put on an effective demonstration, a convincing demonstration. We washed garments that we would not think of putting in the old type machines, such as fragile lace curtains, wool blankets.

There are water currents in all parts of the 482
tub, no dead space or dead washing areas as there was in the other types of machines. It is a machine a dealer can put on a wonderful window demonstration with, by placing the machine in the window filled with water, using colored rubbers in the tub, with a mirror above the machine to show the water currents, the travel of the garments in the water, or rubber parts. In it clothes are washed with water currents. The gyrator sets up water currents that lift the garments. They travel up the wall of the tub, in at the top, and down at the center. The 483
clothes travel in the water currents, and are moved in and out and down and up and out, opening up the garments, washing all parts of the garments. It will wash one handkerchief as well as a load.

The clothes are well distributed around the tub in normal operation. The water currents roll the clothes over in normal operation, and that washes all parts of the garments. Water and soap will not have the effect on clothes that are rolled in a mass or a ball as when they are opened up.

Q. Is it important that the clothes are spread,

flexed, distributed around the tub in a more or less spread-out condition? A. Yes, that helps to do a better job of washing. In other words, an overloaded machine will not wash properly.

Q. I am not talking about an overloaded machine, I am talking about the normal operation, the normal amount of clothes and the normal amount of water in the tub. What if anything is there in maintaining the clothes well distributed around the tub so that they will rapidly
485 roll over? A. I did not get your question there, please.

Q. (Read by stenographer.) A. Well, if distributed in the tub of water, the water currents will act on all parts of the garments.

(Circulars marked for identification Plaintiff's Exhibits 12, 13, 13A and 14, and three circulars attached together marked Plaintiff's Exhibit 15.)

Q. I call your attention to circulars marked for identification, and ask you to look at them
486 and tell us what they are and when they were issued, and when and for what purpose?

Mr. Edmonds: I think I want to offer an objection to this, because I think they are not admissible, but I will have to see them and look them over a bit.

Mr. Lane: They are exact duplicates of the exhibits in the other case, for your information.

Mr. Loftus: Which were admitted there. They are direction cards which accompany each machine, tell the operator how to do this.

Mr. Edmonds: I object to the use of these. They are advertising publications of the plaintiff and directions of the plaintiff for the operation of the plaintiff's machine. If we were dealing here with a method of operation, it is conceivable that even this advertising matter would be admissible.

The Court: How is the advertising matter admissible? On defendant's case I believe the defendant would have a right to 488 put in advertising matter.

Mr. Loftus: They show the construction and operation and directions for operating the machines that were put out long before there was any thought of a lawsuit.

The Court: It seems to me like a self-serving declaration.

Mr Loftus: And go to the further point that the machine was so new at that time that it was advisable, if not necessary, to equip the prospective customers with this 489 literature to acquaint them with the new plan of operation. You heard Mr. Bones say this morning that notwithstanding the fact that he was an old washing machine man at the time, when he first undertook to run this machine he jammed it in like you would overfeed a thrashing machine and, of course, he did not get what he should get. He got a very severe wear and tear of the clothes and slashing of the clothes. So I think with that thought in mind this evidence is material as going to make out a case of novelty.

The Court: I will sustain the objection on that proof at this time.

Q. Were you present during the trial of the case of Maytag Company against the Brooklyn Edison Company, lately pending in the United States District Court in Brooklyn? A. Yes, sir; most of the time.

Q. Were you present during the argument in the Court of Appeals in that case? A. Yes.

491 Q. Was any test made of the machine known as the Davis machine?

Mr. Edmonds: I object.

The Court: The objection is sustained.

Q. Was any test made of that machine in the District Court?

Mr. Edmonds: I object.

The Court: The objection is sustained.

Q. Was there such a machine in the District
492 Court during the trial?

Mr. Edmonds: I object.

The Court: The objection is sustained.

Mr. Lane: We offer to prove that there was a machine in the courtroom called the Form 1 Davis machine, and that it was like the machine which your Honor saw exhibited out there this morning, Exhibit 2-A, and that while the Court of Appeals refers to the fact of its being demonstrated, that no such demonstration was made either in the trial court or in the Court of Appeals.

The Court: I make the same ruling on the offer.

Mr. Loftus: Could we take the answer, your Honor, subject to that ruling for the record?

The Court: Well, I should not think so. Mr. Lane has made the statement. I do not think there is anything more.

Mr. Jeffery: It did seem to me we would have the right to show here the difference between the record here and the record in 494
the former suit; that as we wished to put in testimony that was not in the former suit the record would be clearer if it showed that it was not there before Judge Byers or the Court of Appeals.

The Court: I do not see how material it is. I do not see that it is material for you to go along that way and pick out with a microscope every little thing that you admitted in the other case. It seems to me that the only thing that is before me is to determine the issue on the record 495
made here.

Mr. Jeffery: Should not the record show that the particular piece of evidence such as the one we want to present, which is an important piece of evidence, was not in the prior case?

The Court: There is no use arguing about it. If you all say that is the fact, I will assume that is the fact.

In the Brooklyn Edison case, defendant offered the 1900 machine, Form 1, known as a Davis machine as Exhibit 2-A. Asked how that

496 *Walter Bones—For Plaintiff—Cross.*

machine compared with the Form 1 Davis machine which the witness just operated in court this morning, the witness stated that as near as he could tell it was the same machine.

Mr. Loftus: I would like the Davis machine which the witness operated in the adjoining room this morning marked for identification Plaintiff's Exhibit 16, the 1900 Davis machine.

497 (Marked Plaintiff's Exhibit No. 16 for identification.)

Cross Examination by Mr. Edmonds:

Q. When you operated the so-called Davis machine just before the noon recess with some clothes in the water, the fact is that the agitator did not go down; isn't that so? A. What do you mean by going down?

Q. Go down from the surface of the water, down straight to the bottom? A. It went down several inches before we put the clothes in, and
498 after the clothes were put in it did not have time to go down much. It went down a little.

Q. You think it went down a little? A. Yes. If you give it time it would go clear down.

Q. By saying it went down a little, you mean it went down a quarter of an inch? A. Maybe that or maybe a little more. I did not measure it.

In the later model of the Gyrafoam there is a recess in the bottom of the tub and the agitator sets into that recess, and that was not in the first machine. That item is the subject of Snyder patent 1,506,783, of September 2, 1924.

The later model shows it. The drawing of this patent shows the recess that was in the later model.

At a later time the agitator of the Maytag machine was altered to embody the high center post. That is the center post, that we are using today illustrated in patent 1,729,751, issued to Snyder on October 1, 1929. The drive illustrated in the Snyder patent 1,657,699 of January 31, 1928, looks like the drive that was used in the first Model 80 machine. 500

I think that is the drive that is used on that first Maytag Machine which was exhibited today.

Q. So this patent covers another invention used in the same machine; is that your idea of it? A. I could not say as to that. I suppose it does.

Q. You know that one of the features of merit of the high center post is that it eliminates the item of leakage of water at the point at the bottom of the tub where the power is transmitted up through from the motor below? 501
A. Yes.

Q. Now, in the machine of the patent like this machine that you exhibited today and which you said was one of the earliest, and where no such high center post is employed, an expedient was adopted for reducing leakage of water there at the bottom, consisting of putting a packing around the shaft; that is true, isn't it? A. Yes.

Q. And that is illustrated and described in this Patent No. 1,693,003, granted to plaintiff on an application of Snyder's on November 27, 1928; that is so, is it not? A. That is the drawing of it, yes.

Q. And that was employed on Maytag machines, was it not? A. Not on the very first one; no, sir.

Q. On later ones? A. Yes.

Q. Employed on the later ones in the effort to reduce leakage of water there at the bottom of the tub? A. That is right.

Q. And stated generally that consists of a packing or wicking, which may be forced under the pressure of a screw up into contact with the
503 drive shaft that extends up through the bottom of the tub? A. Sealing the bearings and making it watertight.

Referring to the Snyder patent 1,973,230, issued September 11, 1934, the drawing looks like the Model 80 machine.

Q. The construction that you see there, particularly the construction illustrated in Fig. 1, is the construction employed in the Maytag machines, or some of them, speaking way back into the early 1920's? A. It looks like the first machine.

504

Deposition of JAMES A. McCOY and exhibits therein referred to offered in evidence as Plaintiff's Exhibits 17 to 24, inclusive.

Plaintiff offered deposition of James A. McCoy.

Direct Examination by Mr. Loftus:

My name is James A. McCoy, residence 4906 Washington Boulevard, Chicago, age 56. I was employed by Hurley Machine Company from August 15, 1917 to December 24, 1935.

The name of the company was changed to Electric Household Utilities Corporation, under which name it was doing business when I left in December, 1935. Originally I was auditor and in 1921 Vice President and Secretary. The company was engaged in the manufacture and sale of washing machines during my entire connection with it.

The circular marked for identification Plaintiff's Exhibit 1 (Tr. Ex. 17) appears to be a circular with a picture of a Thor cylinder type 506
machine, indicated as model 32.

The circular shows "Manufactured by Hurley Machine Company" and it looks like the machine that was produced by that company. The cylinder type machine was manufactured and sold by the Hurley Company prior to 1917.

Plaintiff's Exhibits 2 to 8 (Tr. Ex. 18-24) appear to be circulars used in connection with the sale of Thor agitator washing machines. The Hurley Machine Company first began putting out submerged agitator machines of the type shown by these circulars in the early spring of 507
1928.

In view of the fact that at no time did I have any connection with the issuance of circulars or advertising matter for the Company, I cannot state definitely that these circulars were prepared or printed or distributed by the Hurley Machine Company, but they appear to have been used in connection with the sale of Hurley products and Thor submerged agitator type washing machines. Such circulars would be subsequent to the first of the year 1928. I examined the circulars for the purpose of checking the retail

selling price, and these circulars generally correspond with those I saw. There was no other company of that name which was engaged in the manufacture and sale of washing machines during the time I was connected with the Hurley Machine Company.

The Hurley Machine Company or its successor, Electric Household Utilities Corporation, maintained a regularly established place of business in New York City, and sold washing ma-
509 chines of the submerged agitator type such as shown in the circulars from that office prior to October, 1935, and subsequent to 1928.

At the beginning the sales of the cylinder type machine were greater than the sales of agitator type machines; gradually sales of agitator type became greater than sales of cylinder type. The sales of the agitator type machines during the years 1933 and 1934 and 1935, to the best of my memory, were from three to five times the sale of the cylinder type machines. I was subpoenaed to testify as a witness in this
510 case. I am receiving a pension from the Hurley Machine Company at the present time.

Cross Examination by Mr. Haight:

I was Vice-President and Secretary of Electric Household Utilities Corporation. I was never located in its New York office. I had something to do with its business there but not through acting there in any capacity.

It was not within my province to keep record of sales in 1933 to 1935 by units. There were records kept. I have testified from my general recollection.

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The sale was not the same in each of the years 1933 to 1935. My recollection is that there were times when the sales of the agitator type machine would be five times that of the cylinder type in 1934. I would not say definitely that I think it was less than five times in 1935. My recollection is not very definite.

Re-direct Examination:

512

I have seen the records and my statement is based on my recollection of what I have seen in the records. My duties as Vice-President having to do with finances required me to know the extent of business and the different type of machines in 1933, 1934 and 1935.

Said exhibits to McCoy deposition marked Plaintiff's Exhibits 17 to 24, inclusive.

The Court: I will receive them in the Hurley case.

513

Mr. Loftus: I offer in evidence the Easy Machine on which the charge of infringement is based in this case, as Plaintiff's Exhibit 3 and the Hurley Machine as Plaintiff's Exhibit 4.

(Plaintiff's Exhibits 3 and 4 received in evidence.)

The following depositions and exhibits therein referred to were then offered in evidence for both cases.

(Plaintiff's Exhibits 25 to 47, 47A, 48, 48A, 48B, 48C, 48D and 49 received in evidence.)

DEPOSITION OF RAY L. RYAN.

Direct Examination by Mr. Loftus:

My name is Ray L. Ryan; residence, Moorhead, Minnesota; age, forty-four.

I was engaged in the sale of washing machines manufactured by Haag Brothers Company, of Peoria, Illinois. I first sold such ma-
515 chines in the spring of 1911 when I was connected with Huber Brothers Manufacturing Company, of Minneapolis, who had the exclusive sale of the Haag Washing Machines at that time for the territory of Minnesota, northwest part of Wisconsin, north half of Iowa and North and South Dakota. When I first started to work for Huber Brothers we sold the Haag wood tub washer of the Haag dolly type, milk stool dolly with the tipping wringer. The tub was corrugated on the inside, sides and bottom. I continued to sell that type until the spring of 1914.
516 In the fall of 1918 they were selling a wood tub machine with a swinging wringer and with both peg and rub board dolly.

The rub board dolly was a large round flat wood disc, with cleats on the under side, made that way for the purpose of giving more mechanical rubbing of the clothes, and especially to be used in the washing of lighter fabrics where the peg type dolly was too severe.

I represented to the trade that the disc rub board dolly did a more thorough job of rubbing the clothes between the bottom and the sides of the tub. The cleats on the rub board dolly rubbed the clothes on the one side while they

contacted the deep corrugations on the bottom and against the sides of the tub as well. Haag Brothers furnished us with circulars of their peg dolly and rub board dolly machines. The circular marked Plaintiff's Exhibit 4 (Tr. Ex. 25), Haag Circular, is identical with those used by me in the sale of the Haag rub board dolly machine. It shows both the peg dolly and the rub board dolly. The statement on the circular, "A flat dasher for rubbing the delicate fabrics, laces, etc., and the peg dolly for general washing," 518 is typical of the representations I made to the trade in connection with the sale of the Haag machines. That was our sales argument in favor of using the two.

Q20. I call your attention to a drawing of the Davis patent No. 1,240,826, offered in this case as Defendants's Exhibit 3, and will ask you what that represents, and how the rub board there shown compares with the rub board dolly which you sold for Haag Brothers.

Q21. As far as the dolly is concerned. A. I am familiar with that type of dolly, and from 519 the cut it would strike me that it would be practically the same, and its action the same, as the rub board dolly that we sold on the Haag washer. Said Haag circular offered in evidence as Plaintiff's Exhibit 4 (Tr. Ex. 25).

The machine standing in the room is one of the Haag machines which I sold, or is identical with those I sold equipped with a peg dolly and a rub board dolly. Said machine was offered in evidence and marked Plaintiff's Exhibit 5 (Tr. Ex. 48).

The peg dolly with which the machine was equipped, identified by the witness as Plaintiff's

Exhibit 5-A (Tr. Ex. 48A). Witness also identifies the rub board dolly as Plaintiff's Exhibit 5-B (Tr. Ex. 48B). Witness introduces a second rub board dolly as Plaintiff's Exhibit 5-C (Tr. Ex. 48C). 5-B (Tr. Ex. 48B) dolly was improved to the extent of having handles on it to lift it out of the hot water instead of sticking the fingers through the holes, and also has an improved casing. Probably a year after the rub board was put on the market, they put
521 handles on for lifting the rub board out of the tub. Later the Haag Company changed the rub board to a metal rubbing disc. Witness produces one of the Haag metal rub boards which he sold in the ordinary course of business, identified as Plaintiff's Exhibit 6 (Tr. Ex. 48D). The purpose of bringing out the metal rub board was to overcome the objection of the floating of the wood rub board and to give additional turnover by having the pegs connected with it to turn the clothes so that they would be rubbed.

Referring to the number of ribs and three
522 downwardly extending metal pegs on Plaintiff's Exhibit 6 (Tr. Ex. 48-D), I represented that as an improvement to overcome the complaint that we were continuously having from the trade that the wood rub board floated and that the clothes remained pretty much in the same position in the washing machine while it was operating. I represented that the metal rub board would sink in the water and follow the clothes down to the bottom and that the pegs on it would turn the clothes over from time to time while the machine was in operation. Said machine peg dolly and rub boards offered in evidence as Plaintiff's Exhibits 5, 5-A, 5-B, 5-C

and 6 (Tr. Ex. 48, 48-A, 48-B, 48-C and 48-D). Plaintiff's Exhibit 6 (Tr. Ex. 48-D) has the parts number K-19X. That was designated in our parts sheet by that number. The catalog No. 25 of the Huber Manufacturing Company and particularly pages 60 and 61, Plaintiff's Exhibit 7 (Tr. Ex. 26), represents the Haag Brothers' line of washing machines that we sold out of Minneapolis. These pages show the metal dolly. We referred to it as a rub board or dolly. It is exactly the same as the metal dolly offered 524
in evidence as Plaintiff's Exhibit 6 (Tr. Ex. 48-D). Huber Brothers got out the catalog. I understand that the cuts and the sales arguments and description of the machines were supplied by Haag Brothers, of Peoria, Illinois. That catalog was furnished in 1925. The interior, sides and bottom of the tub is shown corrugated and that was true of the tubs I sold for Huber Brothers and which were made by the Haag Brothers, they were all corrugated on the inside, sides and bottom.

Referring to the operation of the Haag ma- 525
chine in which the metal rub boards, like Plaintiff's Exhibit 6 (Tr. Ex. 48-D) and like the ones shown on pages 60 and 61 of the catalog (Tr. Ex. 26) were utilized, the portion of the metal dolly as compared to the wood rub board compared to this extent, that the metal one of practically the same size and dimensions, having additional pegs on it, rubbed the clothes in the same manner as the wood rub board, and, being metal, it settled in the water, settled down to the clothes, followed the clothes down, and, having the pegs on it, combining the feature of the peg dolly, in our sales arguments we contended

that those pegs would turn or roll the clothes over so that they would be more thoroughly rubbed against the corrugations in the bottom and sides of the tub, as well as the rubbing that they would get from the corrugations, or cleats, on the metal dolly.

I sold for Huber Brothers machines manufactured by the Haag Brothers in the fall of 1918, up until the first of December, 1918. I started with them again in August of 1922 and
527 continued until the spring or fall of 1926. Peg washing machines was our major item in the line handled by Huber Brothers. Page 39 of The Hardware Trade, September 16, 1925, shows a cut of Huber Brothers' Nu-Way washer sold by me at that time. It shows the metal rub board like Plaintiff's Exhibit 6 (Tr. Ex. 48-D) and shows the interior and corrugations in the bottom of the tub. The name at the bottom of the advertisement is Haag Brothers Company, of Peoria, Illinois, and below that is Huber Brothers Manufacturing Company, distributors,
528 Minneapolis.

Huber Brothers were the exclusive dealers or distributors of Haag washing machines in our territory. Said advertisement referred to is offered in evidence as Plaintiff's Exhibit 8 (Tr. Ex. 27). The metal rub boards are the same as this one here in the room, Plaintiff's Exhibit 6 (Tr. Ex. 48-D). I came in competition with every washing machine that was sold in our territory and I was familiar with the construction and operation of all the machines that I came in competition with. I made it a point to become familiar with those machines because it was quite necessary, in selling, to be able to

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discuss the construction and operation, not only of the machine that I was selling but to be able to discuss the construction and operation of competitive machines and make comparisons. I first came in competition with the Maytag Gryafoam principle of washing in 1922, in part of my territory in northern Iowa and the northeastern part of North Dakota and some towns in northwestern Minnesota. Prior to contacting the Gyrafoam principle in the Maytag we did not have much trouble in overcoming Maytag competition, but after that got known throughout the territory it made it next to impossible to get dealers to try to sell the rub board or peg type dolly machine.

530

I am stating from my experience in contacting dealers and the objection that they made to me and the reason that they gave for not wanting to continue to handle or push the re-sale of the machines that I was selling at the time. We brought that message in to our office, myself and the other traveling representatives, and discussed it with our sales manager or boss, and told him that unless we had a machine that would match the operation and the work done by the Maytag Gyrafoam machine, our business in the territory on Haag washing machines was going to die out completely. Witness identifies a Maytag Gyrafoam washer offered in evidence as Plaintiff's Exhibit, Model 15 Washing Machine; also identifies a Maytag Gyrafoam Washer, Model 80, now offered in evidence as Plaintiff's Exhibits 9 (Tr. Ex. 11) and 10 (Tr. Ex. 9). Witness also refers to a third machine, Maytag Gyrafoam, again offered in evidence as Plaintiff's Exhibit 11 (Tr. Ex. 10). I owned an

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532 *Ray L. Ryan—For Plaintiff—Direct.*

identical model of the Haag rub board dolly machine, Plaintiff's Exhibit 5 (Tr. Ex. 48), and had it in my home from the summer of 1918 until January of 1927. I have had experience in selling Haag rub board dolly machines for a great many years and in selling the Maytag Gyrafoam machine embodying the principle of the three Maytag machines to which I have just referred and have had experience in operating the Maytag Gyrafoam machine. Comparing the
533 difference in operation of a machine like the Haag machine with the rub board dolly, as compared to the Maytag Gyrafoam principle, from my experience, the outstanding difference is the difference in washing operation in the Haag Nu-Way machine that I owned. It was a rubbing action, and rubbing action alone, that we depended on to wash the clothes clean, or nearly clean. The more soiled things my wife always had to rub on the board, and there was a couple of times I had to help her and do some rubbing on the board myself on account of sickness in
534 the family, while the Maytag Gyrafoam principle washes with water action alone, no rubbing action whatever. It washes the clothes thoroughly clean without any hand rubbing, and with a big saving of time and no wear or tear of the garments put in the machine.

We do not hesitate to wash wool blankets in the Maytag Gyrafoam washer, while we would not have dared to put a wool blanket in the Haag machine with either the peg or the rub board dolly.

I have been familiar with the Maytag Gyrafoam since 1922 and have been engaged in the

sale of it since September 1, 1927, until January 1, 1933. I have used a Maytag washer in my home as well as made several hundred demonstrations in the homes of prospective purchasers where we gave free demonstrations of the machine.

The circular marked Plaintiff's Exhibit 12 represents the first Model 80 Maytag that I contacted in competition in 1922 and 1923, and pictures and explains the Gyrafoam principle of washing. The circular marked Plaintiff's Ex- 536
hibit 13 (Tr. Ex. 13A) exhibits three models of Maytag Gyrafoam washers current in 1932. I have operated and demonstrated these models represented on this circular, having operated and demonstrated them approximately two hundred or more times, making the demonstration myself, or instructing and supervising student salesmen how to do it. The purpose of making the demonstrations was to convince the housewife that we had a washing machine with a method or principle of washing that would wash
clothes clean without hand rubbing. We solicited 537
demonstrations. We went to homes and told the lady what local dealer we were working for selling the Maytag Gyrafoam washer, and urged her to allow us to bring a machine to her home and give her a free demonstration of it, to show her that we had a washing machine that would wash clothes clean without hand rubbing. In the majority of cases the ladies were reluctant to let us bring the machine in because they would not believe that there was a washing machine that would wash clothes clean without hand rubbing. Then I have had ladies feel very indignant and they often told me they did not appreciate

my insulting their intelligence by saying there was any washing machine that would wash clothes clean without hand rubbing. So I often prevailed on the lady in that case to allow me to bring the machine there and wash in her home her clothes and show her that we could wash the clothes clean and fast without any rubbing action whatever in the machine and no hand rubbing or boiling required. We would bring the clothes out spotlessly clean from the water ac-
539 tion only, the water action supplied by the gyrator that moved forth and back in the bottom of the tub, agitating the water and forcing it through the fabrics or the garments that were in the machine. I kept telling the lady that there wasn't anything in her home that was washable but that we could wash it with a Maytag, the daintiest lingerie, as well as the heavier fabrics, such as coveralls or overalls.

Ofttimes the lady absolutely refused, at first, to allow me to put her lingerie, or lace curtains, or anything of that nature, in the machine, and
540 I have often gone to the extent of offering to replace them with new pieces, if any of them were injured in the machine, and in that way got her to allow me to show her that we could wash those dainty fabrics, lace curtains, lingerie, and so forth, quickly and gently, with nothing touching those garments but the suds water. We often ran the machine with the lid open so the lady could look into the machine while it was operating and washing those light fabrics, and would call her attention to how the garments floated in the water, and how the currents of water were swished through the fabrics and washed them thoroughly clean in usually less

than two minutes' time, from one to two minutes.

Where the customer would not believe that we could wash without any rubbing action and properly cleanse the most delicate fabrics they had used some type of dolly, rub board, cylinder or oscillator washing machine, and in the majority of homes they had something of that kind in the home at the time we made the demonstration.

The usual practice as to making a sale was 542
that we said to the lady we would give her a free demonstration of the machine, only asking the privilege to prove to her that we had a machine that would wash clothes clean without any injury to the clothes and without any hand rubbing or boiling required; and then we would say to her that if the machine had sold itself to her, and she felt it was superior in every way to the machine she had been using, or to any other machine she knew of, of course we would like to sell her a new machine. The demonstration generally always resulted in a sale if the 543
people had the money to buy a machine.

In the majority of cases the people had a machine on hand that they were using, some in good condition and others very old. The Maytag Gyrafoam sold for considerably higher than the selling price of the older types, in many instances for twice the amount. The Haag rub board dolly type retailed at from $58.00 to $75.00 and $80.00 according to different models, whether they had extra benches or whether they were bottom driven or top driven. The Maytag sold from $155.00 to $165.00. I have had instances where customers had Haag or Model

Nu-Ways, as well as other makes that washed on the same principle, and I have succeeded in trading those machines on the sale of a new Maytag Gyrafoam washer on the strength of the efficiency of the Maytag washer as compared with the other machine, even though the other machine was still in good working condition. I do not know of a single instance where a customer traded a Maytag Gyrafoam machine for one of those old types, that would be like
545 trading a binder for a reaper.

In 1918 and prior thereto other companies were offering to the trade rub board dolly type machines substantially like the Haag. Among them were the Boss washer, built comparatively the same with a peg and rub board dolly; the Superior washer made by the Sterling Manufacturing Company, of Streator, Illinois, and I am quite sure that Voss Brothers had a machine on the market combining those principles. A good many others that I cannot call the names of we contacted in dealers' stores. At that time
546 they all had about the same principle of operation such as I have described for the Haag. Our sales talks then were, to a great extent, on durability of mechanical construction and the heavier tub, deeper corrugations, giving more efficient rubbing action. I saw a Dietz rub board power washer in operation in my territory in 1915. This washer is shown in the circular marked Plaintiff's Exhibit 14 (Tr. Ex. 28). In 1922, sales resistance to the Haag rub board type machine sprung up all over my territory and to combat that we argued that the Maytag Gyrafoam was a new and untried and unproved article and entirely out of order with the recognized proper

way of washing clothes in a machine. We tried to convince our dealers, if they asked us to contact a customer with them to convince the customer that its principle was tried and proved and many people have them and that they were satisfied with them, and so forth, and that the Maytag principle of washing, we figured, was entirely wrong, or that it was more of a silage cutting machine than a washing machine. We used to tell them those blades on the bottom of the tub would cut the clothes, tear the clothes, and 548
that the clothes would work in under them and ruin them, and so forth.

We would occasionally contact the people and they would say they knew better, they had had a demonstration on one of those machines and that it would not do those things, and that, of course, was hard to overcome.

The Maytag people featured the free demonstrations with the slogan "If it don't sell itself, don't keep it." We had that thrown up to us quite regularly as a point that the machine must be doing the job better, otherwise they 549
would not volunteer to give those free demonstrations. Our attack on the Maytag Gyrafoam machine got us no place. People had demonstrations with the Maytag, and it gradually dawned on us that it was not getting us any place with the dealer because the dealer was afraid to go up against that competition. I had good dealers that had sold a large number of Haag washing machines that simply told me they were not going to attempt to sell against the new Maytag washing machine; that it was hopeless.

The customers that had had demonstrations

really were very displeased and angry when I would try to tell them that the Maytag washing machine would tear the clothes and was a silage cutter, and one thing and another; consequently we were very careful where we discussed those machines in that way, and it got so we just lost confidence in being able to sell against that competition.

We lost confidence in attempting to sell the Haag machine after six or seven months of com-
551 petition with the Maytag.

We went in and had sales meetings and discussed what we were up against in the washing machine field and simply told our boss, or our sales manager, that unless we had a machine that would operate and wash clothes in the same manner, or on the same principle as that Maytag Gyrafoam washer, we were through selling washing machines; that we were unable to make sales and even our best dealers were losing heart and would not re-order.

The Huber Brothers Manufacturing Company
552 catalog marked Plaintiff's Exhibit 7 (Tr. Ex. 26) particularly pages 56 and 57 shows the Haag Vortex washer, with the gyrator in the bottom of the machine. That was supposed to give us the exact same washing principle that we were competing with in the Maytag washer and our sales manager told us that now we had a machine we could go out with against Maytag competition and give the people the exact same washing principle.

I first saw this machine of Haag Brothers in December, 1924, when we started in selling them with Huber Brothers. We made the representation that we could give the trade the identical

same action and principle that people were getting who purchased the Maytag Gyrafoam washer, and give it to them for less money. We made no effort to sell the Haag rub board type machine, except the gas engine model used for a separate gas engine sold to the farm trade, because it was useless to try to sell it in the towns where the people were demanding this principle of washing. I knew that the cuts and descriptive matter on pages 56 and 57 of the catalog were furnished by Haag Brothers. 554

In the description on page 56 is a statement: "They (referring to the clothes) are not subject to a continuous rubbing."

We went out and told the dealers, as well as the occasional customer that might be in the store, that with this machine we entirely eliminated the rubbing action and that the clothes were washed by water action only, by the same method as used by Maytag, and that the machine had a copper tub on it, which we contended was better than the aluminum tub, and the machine sold for less money. 555

When they referred to the continuous rubbing they were referring to any of the wood dolly or rub board type machines, and I was referring to the machine I had been selling, the Haag Nu-Way, with rub boards, Plaintiff's Exhibits 5, 5-A, 5-B, 5-C and 6 (Tr. Exs. 48, 48-A, 48-B, 48-C and 48-D), and we argued that this Vortex machine would overcome the objections they had been making, referring to that Nu-Way Model, and that we were giving him a machine that he could offer to his trade and entirely eliminating the rubbing action in the machine, giving them the Gyrafoam principle of washing in our ma-

chine, in our Haag Vortex, and at a substantial saving in price to the dealer, as well as the customer.

Catalog No. 25 of Huber Brothers was published in 1925. We did not make any attempt to sell the Haag cylinder machine at that time because there was no demand for that type of washer, but we were still offering it for sale and advertising it the same as we were the rub boards. We continued to have them catalogued
557 and offered for sale since I have been with Huber Brothers, but we made no effort on anything but the Haag Vortex from that time on. We offered the others for sale at considerably lower prices and in some instances sold them, especially the gas engine machine, that is, the one with the power dolly on it to be run with a separate gas engine.

Page 56 of the Huber Brothers Catalog (Plaintiff's Exhibit 7, Tr. Ex. 26) states:

> *"Cleans Thoroughly, quickly and efficiently.*
>
> 558
>
> "With the advent of the new principle embodied in this Haag Vortex Washer, comes a greater freedom from wash day worries than has ever been enjoyed by the housewife. For it is a new principle—a better way—a more efficient method of washing clothes, taking out every vestige of dirt without rubbing—without injury to the most delicate fabric."
>
> "Washes the heaviest blankets as well as the daintiest lingerie."

Those are exactly the representations I made to the trade in attempting to sell the Haag Vor-

tex. We were instructed to study this descriptive matter over and form our sales talk from it, which I did, and the other salesmen as well. This matter was furnished by the Haag Brothers, of Peoria, Illinois. The catalog also states:

> "The cut-out view below is quite self-explanatory. The cast aluminum Haag Vortex is what does the work. This 'Vortex' rests at the bottom of the copper tub and beneath the fabrics to be washed. It 560
> makes a 5/8 turn and reverses. Rotating alternately back and forth in this way, a peculiar motion is given to the water, forcing it up along the sides of the tub and drawing it down at the center where it whirls rapidly back and forth."

We made those representations to the trade in attempting to sell the Haag Vortex, and our sales manager told us that we could go out now feeling that we had the very thing that we had been asking for for a long time, and that Maytag had nothing on us when it came to the washing principle. 561

Another feature on this page is:

> "Another feature of this washer is the fact that the clothes are above the 'Vortex' Agitator, not below it. They are not subjected to a continuous rubbing and pounding * * * The action is so thorough, so efficient, that even the deepest seated dirt cannot withstand it. Through and through, back and forth, the foamy, soapy water is forced, removing every trace of

dirt, leaving the clothes clean, fresh, sweet smelling."

We made those representations to the trade. The article on page 44 of The Hardware Trade of February 4, 1925, refers to the Haag Vortex washing machine. Plaintiff's Exhibit 7 (Tr. Ex. 26) for identification, pages 56 and 57, offered in evidence. Page 44 of The Hardware Trade marked for identification, Plaintiff's Exhibit 15 (Tr. Ex. 29).

563 The advertisement on Plaintiff's Exhibit 15 (Tr. Ex. 29), states: "The Latest Product of the Genius of 'George' and 'Al'." That refers to George and Al Haag, the Haag Brothers. The word "New" at the top of the page refers to something entirely new and different. We made those representations to the trade in selling the Haag Vortex machine.

Referring to Plaintiff's Cross-Exhibit 3 (Tr. Ex. 58), being a circular of Miller Manufacturing Company, the cut shows the rub board dolly and looks to be just about the same as the rub

564 board dolly used in the Haag machine which I sold. Referring to the photograph, Plaintiff's Exhibit 16 (Tr. Ex. 30), I would say that the principle and action of the rub board dolly would be practically identical with the action of the Haag washer employing the rub board dolly, provided that the stroke of this rub board is the same as the stroke in the rub board Haag. The principle employed looks to be the same. This type is not corrugated on the sides, judging from the picture, but has cleats on the bottom rather than corrugations.

Said exhibits previously identified offered in evidence.

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The number 25 on the Huber Brothers catalog (Tr. Ex. 26) shows that it was issued in 1925. It took from fifteen to twenty minutes to wash a tubful of clothes with a Haag rub board dolly. During that time it was necessary to raise the cover and remove the rub board dolly in order to turn the clothes over so that they would be rubbed on the opposite side and stir them up so as to rub the part of the clothes that had not contacted either the rub board dolly or the corrugations in the tub.

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Regarding my experience in washing delicate garments, such as laces, silk garments, and so forth, with the rub board type machine, my wife refused to wash delicate fabrics in the machine after trying it. She said it was too hard on them and tore the lace curtains. In the sale of the Haag machine, and particularly in the use of the rub board dolly, we recommended to the customers that when they put the rub board dolly on they would put the peg dolly on top of it to hold it down into the water and on to the clothes. In that case the peg dolly would bear against the rub board dolly as well as against the cover, and if there was considerable water and clothes in the tub, the peg dolly would often rub against the lid of the machine. The peg dolly was more efficient than the rub board dolly and the majority of users, after trying both, went back to using the peg dolly and discarded the rub board in the majority of cases. We did in our own home until we wore the peg dolly entirely out and then we used the rub board dolly after that. In using the Haag rub board dolly machine we lifted the scrub board out, took a clothes stick and stirred the clothes up, turned

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them over two or three or more times during the time we were washing that tubful of clothes, depending on how soiled they were. Bed linens and table linens we would run from fifteen to twenty minutes. Some of the more soiled garments we ran as long as thirty minutes and turned them during that time four to five times by lifting out the rub board and turning them over with a clothes stick. That is the actual experience I had, in company with my wife, in washing
569 clothes.

I mean by that that it only washed part of the clothes part of the time. In the operation of the rub board dolly it was only the clothes that were contacting the corrugated bottom and the sides of the tub and contacting the rub board that were rubbed. That was our object in stirring them up with a clothes stick and turning them over to try to get every part of them rubbed, while in the Maytag we had no occasion to do anything like that because the water action goes through all the clothes all the time,
570 all the clothes that are in the machine, continuously dashing through the clothes.

Photostatic copy of page 39 of The Hardware Trade, September 16, 1925, offered in evidence as Plaintiff's Exhibit 17 (Tr. Ex. 27).

The photostatic copy of page 35 of The Hardware Trade, October 15, 1924, marked Plaintiff's Exhibit 18 (Tr. Ex. 31) illustrates the Haag Brothers Twin Tub washer, one tub equipped with the peg dolly, the other with rub board dolly. The object of exhibiting or showing them in this way was to convey to the customer, and we always explained to him, that the peg dolly in the one tub was for washing heavier clothing,

while the rub board dolly in the other tub was to be used on the other fabrics, bed linens, table linen, and more delicate fabrics.

Referring to these various pages of The Hardware Trade, we cut them out of the catalog and carried them in our sales catalogs and showed them to the dealer, what advertising help we were giving, as well as to explain from the cut what the features of the machine were. We always made use of the Huber catalog, Plaintiff's Exhibit 7 (Tr. Ex. 26), and never failed to carry 572
it, and always showed it to the dealer to show the construction of the machine and explain the operation of it. I carried that catalog in 1925 and 1926.

We carried a supply of circulars like Plaintiff's Exhibit 4 (Tr. Ex. 25) with us, and left them with dealers. They were furnished to Huber Brothers by Haag Brothers.

Cross Examination by Mr. Free:

Huber Brothers Manufacturing Company went 573
out of business in 1929 or 1930. I left Huber Brothers as a full time salesman in the fall of 1926. I did not know that in 1928, 1929 or 1930 Haag Brothers sued Huber Brothers for accounts collectible. I understand that Haag Brothers withdrew its line from Huber Brothers the latter part of 1928. I heard it was because they were not getting a sufficient volume of business and that they had a larger distributor who was anxious to take over the line for that territory. I sold Haag machines from the time Huber Brothers started handling them in 1911 until May 1 of 1914, and again during the fall of 1918,

up until December 1st and then again in the early fall of 1922 until the fall of 1926. I was familiar with every one of the machines sold to Huber by Haag during those periods.

I recall no other dolly than those I have mentioned made by Haag and sold by Huber in that period. I recall the cylinder type and the oscillator type sold by Haag Brothers during that time. I recall photos of an agitator having a wooden disc similar to the rub board disc, with
575 six triangular cleats of substantial depth in the bottom side of it. I am sure that Huber Brothers never had it in that construction of machine. I recall them having it in the top driven machine, the twin tubs, having one of them with that large cleat, approximately six in number, a deeper cleat, on the top driven machine. I saw it in cuts, but I can't say positively that I ever saw it operated. It would operate practically identically the same as the rub board with smaller and more cleats, giving a rubbing or a pounding action as it stroked forth and back in
576 the machine. I do not think the size of the cleat would make any difference in the action of the water on the clothes. I think one large cleat would take the place of two smaller cleats, it would probably be a little more violent on the clothes. I wouldn't say it would be more violent on the water, it would grip into the clothes. A larger number of cleats would give it more of an action similar to the peg type dolly.

The peg type dolly action was for the cleats to grip into the clothes and move the clothes back and forth, rubbing them against the corrugated sides and bottom and giving such agitation as would roll the clothes over and change the posi-

tion of the clothes somewhat as it would grip them and let loose of them as it reversed them.

I did not see any difference in operation between a board having pegs on it and a board having large cleats on it, except that if the board with large cleats was wider, it would probably grip more clothes than the four pegs. With the same size cleats as pegs of the same diameter I would say in my opinion you would have practically the same action. I have never seen one of those peg machines such as Plaintiff's Exhibit 5 578
(Tr. Ex. 48) operate with a board besides those with the cleats extending upwardly instead of downwardly. As to whether it could be operated in that way, I am sure we never were instructed to operate in that way. In my opinion, it would not work that way. It would only rub the clothes that would settle down on the rub board in that event.

With respect to Plaintiff's Exhibit 4 (Tr. Ex. 25), the rub board would give more rubbing than the peg dolly. The flat dasher is particularly recommended for rubbing the delicate fabrics, 579
laces, etc., and the peg dolly for general washing, because the rub board did more rubbing and contacted more clothes but did it in a more gentle manner than the long peg that gripped into the clothes and swished the garments around and pulled them around through the water and against the sides and bottom of the tub.

The rub board dolly rubbed more than the peg dolly because it held the clothes between the rub board dolly and the bottom of the tub and those garments got out to the edge where they swished against the corrugations on the side of the tub and the rub board gripped more clothes

at one time but handled them more gently because of the shortness of the cleats that were not deep enough to take a solid grip of the clothes.

Referring to the corrugations on the bottom of the Haag tub, in our sales argument we contended that the one and a quarter stock tub, which was a quarter of an inch thicker than the tub used by the majority of other manufacturers, that we had a heavier tub and therefore had deeper corrugations, which we actually did,
581 deeper corrugations in the bottom and in the sides, which supplied more rubbing efficiency, so we explained to our customers.

I would say on a brand new tub, those corrugations were between a quarter and five-sixteenths of an inch deep, they wore some, also splintered once in a while. I am not sure that the machine, Plaintiff's Exhibit 5 (Tr. Ex. 48), is representative of the depth of the corrugations in the bottom of the tub because there is considerable wear there. I would say it would not represent it as it would be when it was
582 brand new. I would say the corrugations in Plaintiff's Exhibit 5 (Tr. Ex. 48) are from one-eighth to three-sixteenths of an inch. As to whether you would get but little rubbing on the corrugations, unless the tub was pretty full of clothes on a machine such as Plaintiff's Exhibit 5 (Tr. Ex. 48), I would say that it would not make so much difference if your rub board followed down according to the depth of the water in the machine and the amount of clothes. However, we used to load the machines quite heavy with clothes and then put the rub board on, and used to put the peg dolly on over it to hold it

down on to the clothes to increase the rubbing action.

Normally the rub board in the Haag machine would float on the water because of its natural bouyancy, and unless the tub were full of clothes you would want to push the board below the surface of the water to contact the clothes, otherwise you would have no action on the clothes at all.

The agitator would just float forth and back on the surface of the water or ride near the sur- 584
face of the water and not much would happen to the water. The soapsuds would float on top of the agitator, but the clothes would be standing still. The agitator floated on the water. I wouldn't say that the agitator caused any action that interested us at least. We pushed the agitator down and got it to work on the clothes in order to rub the clothes. When the tub was partly filled with clothes or empty and filled with water, we got no washing action. I never used a machine with any other rub board action than the one which is here in the room. 585
With the Haag machine having a board with six large cleats, you would probably get some water action near the surface of the water, because the cleats were larger. As a general conclusion, the larger you make the cleats, the more water action you would get. The function of the cleats in the metal dasher of the Haag machine, Plaintiff's Exhibit 6 (Tr. Ex. 48D), was to rub the clothes. The function of the pegs was to grip the clothes and pull them around and turn them over. In the Maytag Gyrafoam washer there was no rubbing action at all. I know that to be so. I

have never seen a Maytag agitator with the edges of the blades worn smooth and worn down. I have been selling Maytag washing machines since September, 1927. I have seen blades that showed evidence of wear and would gather that that was from the water action or granulated soap used in the machines, and lye, in territories where they use lye to break the water.

The greatest swishing, the greatest water ac-
[illegible], is on the blade as it swishes forth and back
587 and drives the water through the clothes. That is what takes hold of the water, and as it reverses, the swishing action of the water actually would be most violent over the edges of the blade.

I know that the agitator of the Maytag machine does not contact the clothes at all if the machine is properly operated according to instructions. The instructions are to load the machine with clothes in proportion to the amount of water that is put in the machine. If the housewife does not want to boil or heat enough water
588 to have the water up to the high water mark, she puts in the amount of water that she has prepared and puts in the amount of clothes in proportion to the amount of water, calculated by a capacity load of four normal sized bed sheets, if the water is up to the high water mark, and a lighter load according to the amount of water that is used.

We have found that the housewife accustomed to the dolly or rub board type of machine has a tendency to overload her new Maytag until we demonstrate and convince her that the lighter load washe[illegible]etter and faster with nothing but

water action touching the clothes and that she can complete the job much faster with small loads than with large loads.

I have seen a Maytag operated with a tub-ful of clothes. If there were entirely too many clothes in you would have the effect of clothes at the surface oscillating back and forth with the agitator. Then I immediately instructed the lady to remove the garments until the water has free action and the clothes can roll over and float in the water freely. Whenever you see 590 clothes move back and forth on the surface of the water that suggests to me that the tub is overloaded.

XQ210. And that instead of getting free water action you get rubbing between the clothes and the agitator, which is undesirable? A. It is undesirable. The clothes won't wash that way; they won't wash clean. It would never be satisfactory in that principle of washing.

We recommended approximately thirty-three per cent. larger load in the Haag machine than in the Maytag machine, Plaintiff's Exhibit 5 591 (Tr. Ex. 48), but it took four times as long to wash it as much as it would wash it, and the more soiled garments would have to be rubbed on the board, anyhow.

I would say that the Maytag washing machine washes with water action only when it is operated according to the instructions given us by the manufacturer and the selling organization, the proper method of operating the machine.

The instructions for a full sized family wash is to fill the tub with hot water, not necessarily boiling water but near the boiling point, up to the high water line, and to start the machine in

action. Then continue to put clothes in until we have the approximate equal of four ordinary bed sheets or as long as the water action is free and the clothes float and turn over freely in the tub.

A machine filled with clothes greater in amount than four bed sheets would defeat its own purpose and method of washing by overloading it.

That would apply equally well to such ma-
593 chines as the Haag Vortex, Plaintiff's Exhibit 7 (Tr. Ex. 26). Practically the same result would be obtained in the Haag Vortex if that machine was overloaded. Four bed sheets would weigh approximately five pounds. The Haag Vortex machine shown on page 56 of the Huber Catalog is different in appearance from the 1922 Maytag machine, as a round type against a square type. The Gyrafoam machine has a tapered bottom tub, whereas the Haag machine has a flat bottomed tub. The Early Gyrafoam agitator has a dish-shape, whereas the Vortex
594 has a flat disc at the bottom. Also the Haag Vortex has a stem rising up above the normal water level, whereas that model of the Maytag appears to have a low dome at the center of the agitator. Comparing the Haag Vortex machine with the later model Maytag Gyrafoam, both have the same center stem rising above the water level. In spite of these differences I think that the Haag Vortex operates by water action as well as the Maytag machine. There would be some difference in the water action, but it is water action principle. The difference would be between the flat bottom, or the hopper or rounded bottom. I do not know if I could state

just what the difference in action would be except that with the rounded bottom of the Maytag, the water swishes out and upward, while there would be some difference in the water action in the round tub with the flat bottom, like the Vortex. The Model 15 Maytag machine has a round tub and in respect that it is circular it resembles the Haag Vortex machine in outward appearance. I have seen Model 15 operate. The water action would be more alike in comparing the Model 80 with the Vortex, but the hopper 596
bottom in the No. 15 Maytag gives an upward swish of the water, carrying the clothes with it, keeping the clothes floating and agitating in the currents of the water. This difference in action would be due to the hopper bottom of the Model 15 Maytag machine as compared to the flat bottom of the Haag Vortex machine. When the Model 80 Maytag machine first came out, I told people that it was like a silage cutter, to convey the impression that it was not built to follow the recognized methods of washing clothes. It looked more like a piece of machinery they 597
used for mixing feed or cutting feed, like the blades on a feed cutter or a silage cutter.

We tried to impress the customer that the Maytag Model 80 would probably cut the clothes, and we were perfectly honest in our representations at that time. We actually believed that to a great extent and it was talked about in our sales meetings, about what sales resistance we had to go up against in that machine. Since that time I have changed my mind about the Maytag Model 80 machine. Sometimes we had to operate the Haag machine thirty minutes to wash a batch of clothes. That certainly was

hard on the clothes. Excessive rubbing is hard on clothes, to get them clean or as nearly clean as possible, and to save as much hand rubbing as possible they run them that length of time with a full tub. We never run the clothes in our Maytag to exceed ten minutes, from two to five and from five to seven, and exceedingly soiled garments, such as coveralls, overalls and men's work shirts, from seven to ten minutes. I don't think anything would happen to the
599 clothes if we should run them in a Maytag machine for thirty minutes. The machine shown in the drawing of Patent No. 1,240,826, Defendant's Exhibit 3, is not complete. I never saw a machine like that. I have seen machines with this construction in them, and with the round tub like that, with corrugated bottom and corrugated sides, but that is not a machine to me; it is just a drawing of a tub with two legs on it and a rub board. This machine could not operate as pictured in the patent. I have seen the 1900 machines. I saw this machine with this
600 type of rub board and saw it in operation where they swung the tub with its handle in the side of the tub, and this rub board stood still. That was a swinging tub machine. I wouldn't say positively that I have seen a 1900 machine with a stationary tub and an oscillating board, although I am quite sure that I have seen every model of machine which has been sold throughout the northwest. I saw the 1900 Whirlpool, with a stationary tub and the oscillating or whirling metal gyrator at the bottom of the machine. I would say that the agitator shown on Plaintiff's Cross-Exhibit 3 (Tr. Ex. 58) was comparatively the same thing as the agitator on

rub board of Plaintiff's Exhibit 5 (Tr. Ex. 48). There are fewer cleats on one. These are V-shaped cleats, which would necessarily have to be wider at the base in order to hold them at the disc. I would say that the cleats on Cross-Exhibit 3 (Tr. Ex. 58) would be about twice the height as compared with the Haag and would give more rubbing where it contacted the clothes, but it would not contact as many clothes because it would be more bound to take hold of more clothes and the rubbing would be more violent 602
than the smaller cleat because of the size of the cleat. In other words, the higher and larger the cleat, the more rubbing action you would get, as a general proposition. But more cleats would contact more garments, but not quite as severe rubbing. The same thing would not be so in connection with the Maytag agitator, because this is not constructed to give rubbing action. We never were instructed to exhibit this as a rubbing action, and it does not. This swishes the water like a propeller on a motor boat. It dashes the water away, out and up from this 603
agitator. Because of the shape of the cleats, the shape of the tub and the fact that it is reversed, it is bound to push the water away from itself and carry what is in the water with it. The size of the cleats and the speed of the Maytag machine are bound to have their bearing on the water action. A larger cleat than this, with the same speed machine would give more water action. If you had a smaller cleat, with greater speed of oscillation, that would give you substantial water action, but probably not as efficient water action as you get with this particular type of blade timed at a certain speed.

604 *Ray L. Ryan—For Plaintiff—Cross.*

STIPULATION.

It is agreed that the photostatic copies of the publications and catalogs put in evidence may be used with the same force and effect as the originals and that they were published on or about the dates appearing thereon, subject to correction should error appear.

Cross Examination of Mr. Ryan (Continued):

605 The paper handed me having on its lower edge a photograph of a washing machine and two dashers marked A and B—the dasher marked B is substantially identical with the dasher of the Haag machine, Plaintiff's Exhibit 5 (Tr. Ex. 48).

Photograph of machine and two dashers marked Chicago Cross-Exhibit X.

There is a difference between agitator A and B. There are six cleats on the one, and twelve cleats on the other. I would say the cleats on the 606 one marked A would be twice the size of the cleats on the one marked B. I think there was some reference made to the agitator marked A in our discussions yesterday. The agitator of Plaintiff's Exhibit 5 (Tr. Ex. 48) and the agitator marked B on Cross-Exhibit X are just alike.

The peg dolly on the exhibit marked Defendant's Chicago Cross-Exhibit Y looks to be exactly the same as the peg dolly as used on the Haag machine, Plaintiff's Exhibit 5 (Tr. Ex. 48), but the rub board dolly is the same as shown in this Cross-Exhibit X, which is marked A. I am quite sure that I have seen a circular like Defendant's Chicago Cross-Exhibit Y, between

1915 and 1918. I have seen many machines like the machine shown in Defendant's Chicago Cross-Exhibit Y. That was when I was selling machines for Huber Brothers. I sold machines like Defendant's Chicago Cross-Exhibit Y, but not equipped with this particular rub board. When I inquired of my boss why we didn't have that rub board rather than the rub board marked B on Cross-Exhibit X and tried to find out what the difference between them was, and so forth, he told me that this one with the more 608
numerous cleats did a better job and that the cleats stayed in better; that that was the reason why he was not stocking the machine equipped with the larger and fewer cleats.

I am quite sure that I saw a cut like that on Defendant's Chicago Cross-Exhibit Y, if not on this particular circular. It was the general practice of the Haag Company to furnish cuts and literature for insertion in the catalog, or other literature of their dealers, such as Huber, and to furnish cuts where we had a retail dealer that wanted to put an ad in his local paper. The 609
cuts were furnished to us by Haag Brothers and Haag Brothers paid for one-half of the advertising that was done in the local newspaper. I wouldn't say for sure although it seems I have heard of Luthy and Company, of Peoria, Illinois. Referring to the catalog of 1921 of Luthy and Company, page 55, we were furnished cuts very similar to the three on the left-hand side of the page and with descriptive matter and put up in this way. I would not testify as to the wording. The cut on the lower right hand side I do not recall that I ever had that cut of that machine.

The catalog marked for identification as Defendant's Chicago Cross-Exhibit Z; I do not recall ever having had this particular cut in the lower right hand corner of the page. I recognize this company but never associated it as being at Peoria. I used to run into competition with them in southeastern Iowa. I remember the catalog. I heard part of the testimony of Mrs. Gladys M. Ryan yesterday. I know positively that she was testifying about the machine
611 marked Plaintiff's Exhibit 5 (Tr. Ex. 48). She was testifying about the rub board agitator marked B on Defendant's Chicago Cross-Exhibit X, and about the peg dolly shown on the same exhibit and about the metal dolly marked Plaintiff's Exhibit 6 (Tr. Ex. 48-D). I have seen many machines like the one shown on page 53 of the Luthy catalog, Defendant's Chicago Cross-Exhibit Z, in the upper right hand corner of that page, with the exception of the rub board dolly on the right hand tub, and I am quite sure that we had one machine like that shipped to our
612 Minneapolis warehouse. That was either in the fall of 1913 or the spring of 1914. I did not see a machine like that operate. We did not demonstrate those machines in those days at all. I never demonstrated either the top drive or the bottom drive machine like that.

Re-direct Examination:

The cut marked Defendant's Chicago Cross-Exhibit X in the lower left-hand corner shows an ordinary peg or milk stool dolly, and also a rub board dolly with cleats on it and as there shown are used interchangeably. That was the

representation of the Haag Company. I would say that the operation of those two rub board dollies marked A and B on Cross-Exhibit X would be identical in the machine. It would be strictly a rubbing action, rubbing forth and back over the clothes and moving the clothes in the machine. The difference in the number of cleats would not change the way the work was being done. It would only make a difference in how the clothes were being contacted.

The rub board shown on cut A of Defendant's 614
Chicago Cross-Exhibit X, would be placed in the tub in the same way as the particular form indicated by B, so that the ribs or flanges would be pressed into the clothes. That is the only way any of that type of dolly rub boards were ever put into the machine. To put them in you would have to open the cover of the tub and put in the clothes, and put the rub board down on top of the clothes, but in this particular machine that is shown in this cut either the wood dolly or the rub board dolly could only sink about half-way down on the drive shaft. 615
It was so constructed that it could only go down about that far. That was because of the splines on the shoulders, on the driving casting. There was a flange on it to prevent the dolly going any farther down toward the bottom of the tub. Referring to the cut in the lower right hand corner of page 55 of Defendant's Chicago Cross-Exhibit Z, this shows a machine and also shows a peg dolly, or milk stool dolly, and a rub board dolly exactly the same as B on Defendant's Chicago Cross-Exhibit X; but in the cut-out of the machine they show the rub board dolly very much like the cut marked A.

The cut marked A on Cross-Exhibit X, but with any one of those dollies I know that the water would be put in the machine first, then the clothes, then we would slide the dolly down over the center post that had flanges on each side to hold either the peg dolly or the rub board dolly, and it would slide down until it would contact the clothes. Then we would start the machine in motion and it would stroke forth and back, a five-eighths stroke, that is a little more than
617 half what we used to claim for the machine, and cause a continuous rubbing action, rubbing the clothes on top and rubbing the clothes against the corrugations on the bottom and against the sides of the tub. In rubbing the clothes that contacted the bottom and sides and that the dolly contacted, that is what necessitated lifting out the dolly occasionally and turning the clothes over so as to wash the clothes that were not being washed that laid in between.

I have operated the machine myself with practically an identical rub board dolly.

618 Referring to the circular entitled "Haag Nu-Way Electric," marked for identification as Plaintiff's Exhibit 19 (Tr. Ex. 32), and particularly to the rub board dolly marked A, that is identical with the rub board marked A in Defendant's Chicago Cross-Exhibit X. It has the same number of ribs and the same shape ribs. I would say it was identically the same, a picture of the same rub board. It is also identical with the rub board dolly shown in Defendant's Chicago Cross-Exhibit Y, and also the same as the rub board dolly shown on page 53 of Defendant's Chicago Cross-Exhibit Z, with one exception, and that is that the others are made to

go into the bottom driven machine, sliding down over the center post, while the one on page 53 of Defendant's Chicago Cross-Exhibit Z, is made to be fastened to a drive shaft that came through the top lid and down into the tub.

Comparing the rub board dolly shown in the lower left-hand corner of page 55 of Defendant's Chicago Cross-Exhibit Z, with the cut marked A on Plaintiff's Exhibit 19 (Tr. Ex. 32), it looks to me to be, in principle, the identical thing, but this particular cut here looks as though 620
there were fewer cleats on it. I see three, and the others, if there are any, cannot be seen. I have seen circulars like Plaintiff's Exhibit 19 (Tr. Ex. 32). That circular in describing the rub board states:

> "The ribs take hold of the clothes from the center to the outside and rub them against the corrugations on the bottom sides and of the tub."

In representations made to the trade in the 621
sale of Haag machines we used practically those identical words, except that we said we rubbed them against the corrugated bottom and the corrugated sides of the tub. I saw circulars like Plaintiff's Exhibit 19 (Tr. Ex. 32) while I was employed in selling the Haag rub board dolly machines and other circulars containing the same statement as to the operation of the Haag rub board dollies, and the same statements were also printed in catalogs.

Referring to the Haag circular marked for identification as Plaintiff's Exhibit 20 (Tr. Ex. 33), the rub board dolly shown in the left-hand

column of that page is exactly the same as the rub board dolly shown on page 53 of Defendant's Cross-Exhibit Z. In Plaintiff's Exhibit 20 (Tr. Ex. 33) it shows the shaft which extends up through the cover in operation, whereas, the open door or cover on page 53 of Defendant's Chicago Cross-Exhibit Z does not show the shaft. Plaintiff's Exhibit 20 (Tr. Ex. 33) also shows the peg type of milk stool dolly with an upwardly extending shaft and an outwardly ex-
623 tending shaft for driving it through the cover of the tub. It is the same as the peg type or milk stool dolly shown on page 53 of Defendant's Chicago Cross-Exhibit Z. These were not interchanged. Each stayed where it was put. It was supposed to wash the heavier garments in the tub equipped with the peg dolly and lighter fabrics in the tub equipped with the rub board dolly. However, they could be interchanged, but there would be no object in interchanging them.

One of the purposes of the Haag Brothers showing the twin tubs, shown on page 53 on De-
624 fendant's Chicago Cross-Exhibit Z, one having the peg type or milk stool dolly and the other having the rub board dolly, was so the lady could do double the amount of washing at the same time, and if she started early in the morning, to get through at noon. The rub board dolly would handle the lighter fabrics and did not require as much time, and the peg dolly at the same time would be washing heavier fabrics. It speeded up the job.

That was necessary in order to do a general mixed washing of heavy and light fabrics, to have two machines or two tubs, one equipped with the peg dolly and the other equipped with

625

a rub board dolly in the top driven machines. In the bottom driven machines these dollies were interchangeable. Plaintiff's Exhibit 20 (Tr. Ex. 33) of the Haag circular, described the rub board dolly as follows:

> "The ribs take hold of the clothes from the center to the outside and rub them against the corrugations on the bottom and sides of the tub."

626

In making our representations to the trade we practically committed those descriptions to memory.

Plaintiff's Exhibit 19 (Tr. Ex. 32) in describing a part of the operation of the Haag rub-board dolly states:

> "The clothes receive the proper pressure down and out against the tub corrugations by the weight of the agitator."

627

The same statement is made in Plaintiff's Exhibit 20 (Tr. Ex. 33) in describing part of the operation of the rub board dolly and there shown.

Referring to the folder marked for identification as Plaintiff's Exhibit 21 (Tr. Ex. 34) that shows the Haag Brothers line of washing machines, the Nu-Way long bench, the Nu-Way double tub, the Nu-Way single tub on the one side and on the reverse side it shows a cut comparing the size of the Haag tubs and the thickness of them with ordinary tubs, and it shows the peg dolly with a square shaft attached for driving through the cover of the machine. It

628 *Ray L. Ryan—For Plaintiff—Re-direct.*

also shows the rub board dolly with the square shaft attached for driving through the cover of the machine.

That circular was put out by the Haag Brothers describing their washing machines. I have seen circulars like that while engaged in the sale of Haag Brothers machines. It shows both the peg or milk stool dolly and the rub board dolly of exactly the same construction as that shown in Defendant's Chicago Cross-Ex-
629 hibit X. The circular states:

> "Every housewife will like the two washing principles combined in one machine. A flat dasher for rubbing the delicate fabrics, laces, etc., and the peg dolly for general washing."

We always represented the machines to the trade in that way. Those statements were contained in practically all of the Haag literature which we received in connection with our work in the sale of the Haag machines. This circular
630 in describing the Nu-Way twin machine says:

> "The Nu-Way is also built in twin style, having both tubs equipped with complete washing mechanism. After washing the first lot of soiled clothes in the warm suds in the first tub, set the wringer between the two tubs and wring them into the hot suds in the second tub. Then put second lot of soiled clothes into first tub, close lids and set both tubs to work."

We made those representations to the trade in attempting to sell the Haag twin machines. The circular illustrates and recommends the use

of a peg type or milk stool dolly and the rub board dolly with ribs on the rub board identical with the ribs on the rub board shown in Defendant's Chicago Cross-Exhibit X.

Circulars referred to by the witness, Plaintiff's Exhibits 19, 20 and 21 (Tr. Exs. 32, 33, 34), offered in evidence.

Plaintiff's Exhibit 21 (Tr. Ex. 34) in describing part of the operation of the rub board dolly as identical with the rub board dolly shown in Defendant's Chicago Cross-Exhibit Y states: 632

> "This new type agitator is one of our latest improvements and has been found equally satisfactory in washing delicate fabrics or heavy clothes.
>
> "The ribs take hold of the clothes from the center to the outside and rub them against the corrugations on the bottom and sides of the tub.
>
> * * * * *
>
> "The clothes receive the proper pressure down and out against the tub corrugations by the weight of the agitator." 633

We always made those representations to the trade. Referring to whether we used the form A or B illustrated in Defendant's Chicago Cross-Exhibit X, the purpose was to wash the clothes, to rub them against the bottom and the sides, and also to rub them with the rub board dolly. I would say that the result would be practically the same, no matter which one of those rub board dollies you were using. My answer is based on my own experience and on the representations made by Haag Brothers. Based on my knowl-

edge and experience in the washing machine industry, and particularly my experience with the Haag rub board dolly, and in demonstrating and selling the Maytag Gyrafoam machine, and comparing them, I would say that in the Haag machine we depended entirely on rubbing action, mechanical rubbing action, to get the clothes clean, or as nearly clean as possible, washing part of the clothes at a time, those that contacted the corrugations in the bottom and sides
635 of the tub, or the clothes that were contacted by the rub board dolly. By taking out the rub board dolly and swinging the clothes, turning them over with a clothes stick, we tried to get all the clothes rubbed equally, while on the other hand, in the Maytag Gyrafoam principle of washing, we depend entirely on water action to wash the clothes clean, and it washes them clean. It washes all the clothes all the time while the machine is in operation without any rubbing action whatever, no corrugations in the sides or bottom of the tub, as they are perfectly smooth, nothing
636 that in any way compares with the rub board about the construction. It is the violent action and cross-currents of the water swishing the water and suds through the garments, all the garments at the same time, that we depend on to get the clothes clean. That would be my comparison, the way that I would make a comparison to my prospective purchaser.

I found that to be a fact from my personal actual experience, those two distinct different methods of washing clothes, and I have operated both machines extensively, as well as numerous other types of machines. In the Maytag Gyrafoam machine I attribute this principle to

the scientific construction of the machine, the shape of the tub, the shape of the agitator or gyrator, and especially to the violent cross-currents of water action produced by agitating the water at the bottom of the tub towards the top.

I have sold and supervised the sale of approximately a hundred and fifty of the Maytag machines like Plaintiff's Exhibit 9 (Tr. Ex. 11). The operation and results obtained in that machine were practically identically the same as in the two previous machines. 638

Re-cross Examination by Mr. Free:

Plaintiff's Exhibits 19 and 21 (Tr. Exs. 32, 34), Haag circulars contain statements:

> "They also serve to force currents of dirt-cutting suds through the clothes which reduces the amount of rubbing necessary to get the clothes clean."

That is one of the representations which I made to the trade. 639

We never spoke of the agitator as rubbing the clothes and producing a substantial water action. We spoke of it as pulling the clothes through the water and in that way swishing the water through the clothes. I would say that the clothes moving in the washing action would be the same with the agitator marked B in Defendant's Chicago Cross-Exhibit X. As to whether the lower ribs of the agitator marked B, Defendant's Chicago Cross-Exhibit X, would act in the same way as the higher ribs on the agitator shown in Plaintiff's Exhibits 19 and 21 (Tr. Exs.

32 and 34), so as "to force currents of dirt-cutting suds through the clothes," I would say that we never spoke of or referred to water action in selling these machines, but the rubbing action, I would say, would be comparatively the same. My opinion would be that the ribs on Agitator B, Defendant's Chicago Cross-Exhibit X, would be about the same and have the same water action as the agitator described in Plaintiff's Exhibits 19 and 21 (Tr. Exs. 32 and 34).

641 One would grip more clothes at a time and grip them more securely than the other. With the clothes packed tightly together as they always were in that type of washing machine, the water action that was produced would be above the clothes and not in between the folds of the clothes. That would be my explanation of that because the clothes were held tightly together by the pressure of the rub board over the top, holding them against the corrugations in the bottom of the tub and those that shoved out to the sides against the corrugations in the sides of the tub.

642 Referring again to the statement in the circular: "They also serve to force currents of dirt-cutting suds through the clothes which reduces the amount of rubbing necessary to get the clothes clean," I would not say that that was true in operation because you couldn't get an action of water and suds through clothes that were tightly packed together; that is, from my personal experience in operating the machine.

I would say in that respect that the statements are incorrect; that it did not do the job in operation that it states it was capable of doing. In describing the operation and results, I would say that that part of the statements in Plaintiff's

Exhibits 19 and 21 (Tr. Exs. 32 and 34) was not correct in practice. We framed our sales talk from the information we got from the circulars and stressed the points that we figured were the points that would impress the prospective buyer as being logical and sensible and cause him to purchase the machine.

We have adopted the same practice in selling the Maytag machine. We adopted the outstanding sales points and talks, scarcely ever going into complete detail unless it was necessary. I 644
am very familiar with the Maytag Model F machine, disclosed in Defendant's Exhibit 1. I am not sure that I ever carefully read over one of these circulars before, although I have handed out many of them. I have stated that the agitator of the Haag machine forced the clothes and rubbed them against the corrugated sides and bottom of the tub. I know that to be a fact. I believe that to be an essential feature of the Haag machine necessary to secure clean washing of the clothes. We especially stressed the depth of the corrugations in the bottom and the 645
sides that produced mechanical rubbing. I would say that I am familiar with all forms of the Nu-Way model Haag machine. It was characteristic of the Nu-Way machine to have two dollies, one of the milk stool dolly type and the other the flat dasher. It was supplied with both dollies, or a choice of either one. Referring to the photostat of page 66 of House Furnishing Review, November, 1920, containing an advertisement of Haag Brothers disclosing a washing machine with a copper tub marked for identification as Defendant's Chicago Cross-Exhibit W, I saw the machine represented in this cut on many occa-

sions. I am not sure that I ever sold that particular model, although we had them for sale. I was so well sold on the heavy wood tub, and its virtue of keeping water hot for a long time, that I was personally prejudiced against a copper tub. I never saw a Haag Nu-Way copper tub in operation. I would say the operation of the copper tub Nu-Way machine was the same as the Nu-Way wood machine, but I would question the results because, as I stated before, the water
647 would not stay hot in it a long enough time and we required boiling hot water in that type of machine, and I must frankly say that I was so disinterested in this particular model, because of the copper tub, I had always talked against copper tubs on the territory, that I paid little or no attention to that model.

I am not nearly as familiar with the construction and design of the copper tub of that machine as I am with the wood tub. As I remember it the side was made of one sheet of copper, but soldered up one side and soldered in the bot-
648 tom. I would say that any corrugations on the inside of the tub would also show on the outside of the tub unless it had a double wall. Some parts of it look as though there was some corrugation there, but the other parts of the tub look as though it was smooth. The one on page 55 of the Luthy catalog, Defendant's Chicago Cross-Exhibit Z, is practically the same cut of the copper tub machine on Defendant's Chicago Cross Exhibit W. As to whether the descriptive matter is true, that the interior is smooth, I never took any interest in that particular model of machine. I don't know whether the inside was smooth or not. I would presume that it was.

If the inside was smooth I never would have recommended that tub to wash clothes as efficiently as you could in the machine with corrugations because you would not obtain the rubbing action necessary in that type of construction. Referring to Defendant's Chicago Cross-Exhibits Z and W and the two horizontal beads apparently rolled into the side walls of the tub, I do not think those beads would have any effect on the washing action in so far as rubbing is concerned, because they were horizontal and the 650
action of the machine was also horizontal. Horizontal corrugations would not give any rubbing action in a machine operated that way. Referring to the horizontal corrugations on the Model F machine there were four rather than two, and two of the four are well above the water line I would say they were there more for the purpose of strengthening the tub and no rubbing action at all.

Referring to the Maytag circular, Defendant's Exhibit 1, and the statement: "The side corrugations and concave bottom produce extra water 651
agitation * * * extra cleansing power," I would say that the concave bottom, the water being agitated from the bottom, that these two lower corrugations would very slightly break the current of the water in its upward travel, but would be of very little consequence in whether they were there or whether they were not. The tub might as well be smooth and you would get the same results in operation.

Referring to the Haag Nu-Way copper machine, the washing action is entirely different and in the Maytag the water was agitated with an impeller in the bottom of the tub, forcing the

water out and upward, while in the Haag the washing action was produced with a peg or rub board dolly slid down from the top and pressing down on to the clothes.

The horizontal corrugations in the Haag copper tub have no effect on the washing action. The outside is smooth with the exception of these corrugations, and I presume the inside was equally smooth.

The horizontal currugations in the type of ma-
653 chine such as the Haag copper tub, would have nothing to do with washing the clothes. The peg dolly of the Nu-Way twin tub machine shown on page 53 of the Luthy catalog, Defendant's Chicago Cross-Exhibit Z, was recommended for heavy washing and the flat dasher was recommended for lighter washing, and I would say in that copper tub machine the peg dolly would be the only efficient dolly to use, and if I recall rightly, that copper tub machine was never supplied with a wood rub board dolly, but with a metal one that combined the rub board feature
654 with the pegs in that particular model.

The language at the top of page 55, Luthy catalog, Defendant's Chicago Cross-Exhibit Z, the caption: "Nu-Way Washer Copper or Wood tub—Equipped with Peg and Flat Agitators," recalls the very thing I have just referred to. I do not recall ever seeing that machine equipped with the wood board dolly, but I do recall it having been equipped with the metal rub board, with the extended pegs. I do not see any metal rub board shown on page 55.

Referring to the Haag circular, Plaintiff's Exhibit 21 (Tr. Ex. 34), the statement: "This new type agitator is one of our latest improvements

and has been found equally satisfactory in washing delicate fabrics or heavy clothes," refers to the rub board or disc, the larger of the two. The flat dasher or agitator was supposed to do all kinds of washing. Using only the flat dasher in the Haag Nu-Way machine you would have an all-purpose washing machine, except that it would take much longer to wash heavy garments and more danger of breaking parts of the machine, because of its gripping more clothes at a time. 656

The statement in Plaintiff's Exhibit 19 (Tr. Ex. 32), that the ribs take hold of the clothes from the center to the outside means that the ribs, being about eight to nine inches long, grip the clothes clear across much more than the peg dolly, which was only about seven-eighths of an inch around and gripped a smaller amount of clothes at a time. I do not agree that the clothes were driven out. I agree that they were driven down toward the bottom, and any of them that were out remained out against the sides. The heft of the rub board would drive the clothes 657 down in the tub. The agitator A on Plaintiff's Exhibit 19 (Tr. Ex. 32) is made of very hard wood and had a casting mounted on them and they were supposed to sink to the clothes or have enough weight in them so that they were always in contact with the clothes. I presume the same casting that I have referred to on Plaintiff's Exhibit 5-B (Tr. Ex. 48-B) was supplied with the agitator marked A on Plaintiff's Exhibit 19 (Tr. Ex. 32). It does not show in the cut here, but the bottom side of the rub board is shown. I would say that the casting would be of sufficient weight to sink it below the surface

of the water and then packing the machine with clothes so that the clothes were always very close to the surface of the water. If the disc were well water soaked, I would say that the additional weight of that casting would sink it the short distance it was necessary to contact the clothes, but at times we found it necessary to put the peg dolly on top again to force it down. If you had considerable water and not very many clothes, it would float the clothes to the top. If there
659 were no clothes the disc would float near the surface. It would not float if there were clothes near the top. If the tub were loaded with clothes, the agitator would rest on the clothes I would say about a half inch or maybe a little more under the surface. When we got a small batch of clothes we often drew a portion of water off so that the rub board would settle down lower and contact the clothes better. Unless the flat disc agitator is water logged, or the peg dolly is placed on top of it, the flat agitator floats near the surface of the water in the bottom drive ma-
660 chine, such as Plaintiff's Exhibit 5 (Tr. Ex. 48).

I am familiar with the majority of washing machines sold around this territory. I know the Voss washer, made in Davenport, very well, and I know the so-called Flotoplane agitator of that machine. That floats near the surface of the water. That would be the only respect it would compare with the Haag Nu-Way bottom driven machine. The violent action in the Maytag machine is caused by the driving of the gyrator forth and back in a reversed motion, with wings on it built right into the bottom of the machine, and those wings take hold of the water and force

it out. The concave or rounded bottom of the tub conveys that water in an upward motion.

I think the rotation of the agitator is entirely responsible for that action. It is like stirring sugar into a cup of coffee, a comparison that we often use. You push the spoon to the bottom of the cup and agitate the coffee there and it agitates this all the way to the surface. The shape, referring to the dish shape portion of the bottom disc of the Maytag agitator, would have something to do with the violent action of the 662
water that may be the reason the designer designed it that way. The Maytag Model 80 agitator oscillates about fifty-two strokes to the minute. In the round tub Model 15 and Model F, it is sixty strokes to the minute. The Haag Nu-Way machine shown in the circular Plaintiff's Exhibit 19 (Tr. Ex. 32) was sold at about the dates appearing on the testimonial letters reproduced in the circular, namely, February 10, 1918 to January 22, 1919. The speed of oscillation of the agitator of this machine is forty-six to forty-eight strokes, as I remember it. I would not say 663
that the flat dasher could be referred to as an agitator. I refer to it as a rub board, or dolly. I am aware that the circulars, Plaintiff's Exhibits 19 and 21 (Tr. Exs. 32 and 34) refer to this flat dasher as an agitator, but prior to that they referred to them as rub board dollies, as I recall it.

Re-direct Examination by Mr. Loftus:

I know that the different models of Maytag machines which I referred to in my direct examination as manufactured and sold accomplish

the various results and produced this new plan of operation concerning which I have testified. I know that the parts arranged as they are, and operated in the intended manner—that the whole combination gets this result. If the Maytag is operated according to instructions, it will wash clothes perfectly clean by water action alone, and wash all the clothes all the time while the machine is in action. Referring to the statements in the Haag circulars, the water which was
665 forced through the clothes to a small extent was done by the pulling of the clothes through the water by the ribs on the rub board, and that is what I meant in my answers. That is also true with respect to the peg type dolly and to that extent the rub board, according to the literature of the Haag Company, afforded certain features of the peg type dolly as well as the additional rub board action.

The literature and the Haag Company represented that the agitator would slide up and down on the shaft in the center of the tub. I
666 would not want to make a positive statement as to whether the Haag copper tub interior was corrugated or not, and I do not know whether there was a corrugated rub board in the bottom. If corrugated you would have a rub or scrub board at the bottom of the tub. The Nu-Way machine of which I was familiar and which I sold did have corrugated sides and bottom and those points were stressed in connection with the sale of the machine.

Re-cross Examination by Mr. Free:

Referring to the statement on page 55, Defendant's Chicago Cross Exhibit Z, "Its smooth

interior never snags or tears clothes," I would say, taking that literature there, as far as I know that was correct, that was smooth. The Maytag machine only operates properly when instructions are followed reasonably close. If you put in more clothes than the instructions specify, you do not get the free action of the water swishing through the clothes, the free action of the water rolling the clothes over and turning them over. The more clothes you put in above the amount specified, the less water action you get 668
and it could be made to reach the point where you would not get any water action at all. That would be foolish to do, because you would not have any water action and the clothes would not be washed clean. If the machine were overloaded, the clothes would rub on the agitator.

GLADYS M. RYAN, called as a witness on behalf of the Plaintiff, testified as follows: 669

Direct Examination by Mr. Loftus:

My name is Gladys M. Ryan; residence, Fargo, North Dakota, housewife, and wife of Mr. John Ryan.

I have used my Maytag since 1926. Prior to that time I used a Haag washing machine, which is here in the room, marked Plaintiff's Exhibit 5 (Tr. Ex. 48). I used the Haag machine once a week from 1922 to 1926.

That machine had a peg dolly and wooden rub board dolly and later on I had the metal

dolly, marked Plaintiff's Exhibit 6 (Tr. Ex. 48-D). Using the Haag machine, Plaintiff's Exhibit 5 (Tr. Ex. 48), I used to soak my clothes the evening before I washed, and in the morning I would wring the clothes out and put them in the machine and wash them. Then I boiled my clothes, washed them first in the machine and then put them into the boiler and boiled them.

Sheets and table linen and clothes not badly soiled took approximately twenty minutes to
671 wash in the machine, and I would say thirty minutes for the clothes that were more soiled. Starting out I made the soapy suds and put the clothes in and put the rub board in on top—I would put the dolly in and close the cover and during the interval I would take the cover off, remove the dolly and turn the clothes over. I did that in order to take the clothes from the bottom and put them on top so they would rub on the rub board.

We felt that with this particular type of machine we should put quite a number of clothes in
672 to get the rubbing action, so this dolly would rub around on top, so we would remove the dolly and turn the clothes that were underneath over on top, so as to wash those, because they were not being moved very fast underneath. You could put your hand down and find they were not moving and were not being washed.

I would remove the dolly and turn the clothes three or four times during the period we would be washing. To get the rub board out of the machine after raising the top you would lift the top off. I did not have a rub board with handles like one of these models and we would have to

put our hands in and lift it out of the hot water.

Napkins, handkerchiefs and small articles would work around the edge and force themselves through those holes in the rub board and I would find the clothes had passed over and were on top of the rub board. To get the rub board out we would take the clothes off the top and push them down in the sides. After I had washed a tubful of clothes by turning the clothes over with a stick four or five times during a 674
wash, I next put the clothes in a boiler and boiled them for approximately twenty minutes in order to get them clean. Then I removed the clothes from the boiler and in the case of dish towels and clothes that were more soiled than others, I put them back in the machine and rubbed them for a short time. Then I would wring them out through the wringer, and men's shirts and cuffs had to be rubbed on the washboard. I always kept a washboard. I found it necessary to hand scrub part of the clothes, such as collars and cuffs on the old fashioned scrub- 675
bing board, but I did not put the shirts in the boiler. You cannot boil the shirts, except the white shirts. The colored ones had to be rubbed separately. I kept on hand at all times during the washing operation a scrubbing board that I could use for that purpose. I also had to wash stockings and colored clothes that were more soiled on the board. I tried to wash delicate garments, such as lace curtains, lingerie and silk stockings in the Haag rub board machine with the large rub board that was supposed to be used for lighter garments, and then I had to discontinue using it. It was too hard on the

fabrics. I tore the curtains, so I didn't use it. I washed those by hand. You just couldn't put silk stockings in that Haag machine, nor lingerie or such things. It was too severe. I tried to wash a wool blanket in the Haag rub board machine and it rubbed all the wool off. I had about a peck and a half of wool in my machine when I got through, what was in the blanket; the friction rubbed the wool loose from the blanket. In using a Haag rub board dolly machine an
677 attempt was made to hold the rub board down in the water so that it would not float on top, by putting the little peg dolly on top so as to get the weight for rubbing.

(Witness makes a demonstration on Plaintiff's Exhibit 5 [Tr. Ex. 48]).

Mr. Loftus: The witness has just demonstrated how this was done by placing the rub board dolly in first and then the peg dolly on top of the rubboard.

678 After we had so arranged the dollies in attempting to hold the rub board dolly down on the clothes, we closed the cover of the tub so that the peg dolly was between the rub board dolly and the cover of the tub. We did not also use the metal rub board to weight down the wooden rub board. I just used the two wood ones. The metal was heavy enough to weight itself down. As to whether I got the better results from the peg type dolly or the disc rub board dolly, I discarded the rub board dolly entirely for the reason that the sheets and heavy clothes it rubbed on top and did not move the garments that were underneath in the bottom of

the tub, and the peg dolly would grab the clothes and move them around through the water back and forth. I had some pillow cases torn in the old Haag peg dolly machine. With the old Haag machine whether I used the peg dolly or the rub board, or both, it would take to do an ordinary washing four or five hours. I have used a Maytag since 1926. It was like the Model 80 in evidence as Plaintiff's Exhibit 11 (Tr. Ex. 10). With the Maytag machine I do the same amount of washing in two hours. The advan- 680
tages of the Maytag from my experience were in the first place I do not have a washboard and I never have boiled any clothes since I have had a Maytag. No hand rubbing with the Maytag at all. The clothes are washed clean and I wash everything washable, including lingerie, silk stockings, lace curtains and blankets, I also wash overshoes and pigskin gloves, and I have washed feathers. I do not have to turn the clothes over with a stick in the Maytag machine, the washing principle is different. They do not have to be turned. The water is forced through 681
the clothes instead of the clothes being rubbed. All the clothes are always moved in the water in the Maytag machine. It washes all the clothes all the time. They never stand still and have to be turned. In the old type machine with the peg dolly the clothes were more or less pulled around in a bunch, they were tangled and I would have to untangle them with my hands in the water after raising up the cover and disengaging the dolly. I do not soak the clothes in using the Maytag machine and I do not have to use any hand rubbing to finish them for anything. I have no washboard. I have had no

washboard since getting the Maytag. I find that clothes wear much better when washed in the Maytag as compared to the old type machine. There is no rubbing or friction and they last many times longer. There is no pulling around in the water. When using the old rub board machine the clothes at the bottom were not moved. I would put my hands down in the bottom of the tub and such action as the clothes were receiving was near the upper or top strata of the
683 clothes in the tub.

In the first place, we had to load the machine to get the rubbing action and they were pretty solid and it scrubbed them on top. Then we tipped them over and scrubbed the clothes underneath. You could put your hand in the bottom of the tub and feel that they were barely moving.

In using the old Haag machine like Plaintiff's Exhibit 5 (Tr. Ex. 48), particularly when using the disc rub board, I found it necessary every time to turn the clothes four or five times dur-
684 ing the wash so that the ones in the bottom would be brought up in the rubbing action with the rub board. I would have to shut off the motor to take the top off, remove the dolly and turn the clothes over.

Cross Examination by Mr. Free:

I usually put three sheets in my Maytag machine. I have put in four but I usually put three in. I get the best results, more water action and less time with three. I never put in more than four sheets. I have followed instructions pretty closely in operating the machine.

The nature of my laundry during the time I had the Haag machine was the same as when I had the Maytag machine. It was not heavier with the Haag machine than now and the clothes were soiled just the same. I never had any trouble with my Maytag machine in having lint get into the drain pipe. I have not noticed any lint even with blankets. I wash them a very few minutes, from two or three minutes, it doesn't wash the wool from the blankets. In the Maytag machine I use Lux for silks and woolens and I 686
have used several varieties of soap. I have used P. and G. soap and I have used Rinso and Chipso. I used Crystal White with the Haag machine. P. and G. Soap may be a little stronger than Crystal White soap. When I used the Haag machine Lux and Rinso were not on the market as soap chips. Then and now I always melt the soap first. I sold the Maytag machine I got in 1926 because they came out with a new model and we always wanted to have the latest model. I think that was in 1929. The shape of the tub is exactly the same as the other. There 687
is no difference in the washing principle between the old and new Maytag. The difference was in the starter. Now they have just a lever, then they have a large wringer roll on this machine. My old machine has the high post in the center, the same as the new one. My expenses are being paid down here and back to Fargo. I am not getting anything else for coming down here to testify. I do not expect to.

Mr. Loftus: I offer in evidence as Plaintiff's Exhibit 18 (Tr. Ex. 31) page 35 of The Hardware Trade.

688 *Sherman M. Weeks—For Plaintiff—Direct.*

SHERMAN M. WEEKS, called as a witness on behalf of the plaintiff, testified as follows:

Direct Examination by Mr. Loftus:

My name is Sherman H. Weeks; age 58; residence, 810 East Locust Street, Davenport, Iowa. In 1912 and 1914 I was selling washing machines wholesale for the Voss Brothers Manufacturing
689 Company, of Davenport, Iowa. They had a peg dolly type and they also had a machine fitted with a disc with cleats or ribs fastened on the underneath side. The tub was corrugated on the inside, sides and bottom. The cuts on Plaintiff's Exhibit 22 (Tr. Ex. 35) actually illustrate the type of peg dolly and disc with ribs as used in the Voss machine. I recognize that as a Voss advertisement by their trademark and also by the shape of the disc.

Referring to Plaintiff's Exhibit 22 (Tr. Ex. 35), it states:

690

> "The Disc or Flat Dasher, which can also be used on Voss Peg Type Machines if desired, is made from clear cypress with slats or corrugations on bottom ¾ inch thick, giving a perfect rubbing surface. The dasher is 16½ inches in diameter and there is a malleable iron flange 15 inches in length on the upper side, contributing ample weight and strength. The disc is perforated with six holes 1¼ inch in diameter to provide additional agitation and circulation. The top of the dasher rod is fitted with handle

for raising complete dasher when opening lid. Like the peg dasher, the disc automatically adjusts itself to the size of the wash, always resting on top of the clothes."

That is the disc to which I have just referred to as being used in the Voss machine which I sold in 1912 and 1914. The salesman understood and it was advertised as a disc with a rubbing action on the clothes. The moving of the clothes would cause them to rub somewhat 692
on the sides of the tub and the bottom of the tub. I refer to the disc rib dolly type as the rub board type and it was a well recognized type by several companies. In comparing sales, I would say that the rub board type dolly was not a very popular seller as compared to the peg or milk stool type, because it didn't seem to do the work as efficiently or as fast as the peg dolly type. I recognize the second circular, Plaintiff's Exhibit 23 (Tr. Ex. 36), as issued on behalf of the Voss Company. That illustrates the rub board type of dolly. We offered 693
that for sale equipped with either a peg dolly type or rub board disc type. The rub board type dolly was supplied on special orders. Plaintiff's Exhibit 23 (Tr. Ex. 36) contains a statement:

"All Voss Washers are regularly equipped with peg type dashers, but we supply on special orders, disc or flat dashers, as shown on page 3 of this folder. All machines equipped with special dashers must be shipped from the factory at Davenport, Iowa."

That was the practice and that is what I advertised. The third folder, Plaintiff's Exhibit 24 (Tr. Ex. 37), is an advertisement put out by the Voss Company. The outside cover shows the material used, the old hand type of washing machine. It shows the washboard with the clothes in the tub and the woman operating it was standing up when she was working. The back cover, Plaintiff's Exhibit 24 (Tr. Ex. 37), illustrates the old disc rub board dolly known
695 as the automatic. The handle at the end was there because when the lid was open it was back and naturally the agitator on this disc would fall back against the lid and this would project down, but immediately you turned the lid over to a closing position that would slide down on account of its weight, and the tub being round and the dasher being round, the handle was put on there to hold it back, so that when it comes down the agitator or that disc would go down in the tub without hitting the edge of the tub, because the tub on that machine was smaller on
696 the top than it was at the bottom. There wasn't very much clearance. The rub board was driven by a shaft extending through the cover and this arm.

Plaintiff's Exhibit 22 (Tr. Ex. 35) says:

> "The dasher is 16½ inches in diameter and there is a malleable iron flange 15 inches in length on the upper side, contributing ample weight."

We wanted the weight to hold this rub board dolly down on the clothes so that it would give more rubbing action.

Three exhibits offered in evidence as Plaintiff's Exhibits 22, 23 and 24 (Tr. Exs. 35, 36 37).

From October, 1914, to June, 1915, I was selling washing machines for the Superior Machine Company, of Sterling, Illinois. It was a Sterling power washer with a top made of cedar and it oscillated on the bench a little better than a half turn each way, and it was fitted with a rub board disc with a shaft fastened on to the top and hooked up through the lid. There was a cross arm that run over to the wringer housing 698
there and that held this dasher motionless while the tub oscillated back and forth, causing the clothes to be rubbed by the dashers on the top, as well as the sides and bottom of the tub.

I recognize the circular of the Superior Machine Company marked for identification as Plaintiff's Exhibit 25 (Tr. Ex. 38). It illustrates the machine I have just been describing. It illustrates the rub board dolly.

Q48. Just point out where it is in the cut on this exhibit. A. (Witness does as requested.)

Q49. Adjacent to the open cover? A. Yes. That 699
does not show the extension of the shaft on the top of the disc.

Q50. What was the operation of that machine? A. Just the same as I have explained. That was the one that oscillated back and forth with this arm dropped in over here to hold that dasher motionless while the tub went back and forth underneath it.

We figured that the scrub board supported in the cover, gave more agitation to the clothes there, gave it more rubbing surface by the tub moving instead of the dasher. (Referring to another leaflet of the Superior Machine Com-

pany.) I sold machines like there illustrated. That machine was equipped with a peg dolly and a rub board disc, and instead of having a shaft attached to the top of the dolly or the rubboard disc they had a hole in it and it fitted over a pipe up through which a shaft was driven from the bottom of the tub, and this pipe had little wings on it, I might call them the projections, and this dolly or rub board disc set down over that and would bear down on the clothes.

701 In using that machine the first step in doing a washing would be to put the water in the tub and then put the clothes in and then put the dasher in, then close the lid and put on the top. That rub board disc would operate back and forth, rubbing the clothes on top; also causing the clothes to move about in the tub, rubbing on the sides of the tub and also on the bottom. The bottom and sides of the tub were corrugated.

Said leaflet marked for identification as Plaintiff's Exhibit 26 (Tr. Ex. 39) and Plaintiff's Exhibit 25 (Tr. Ex. 38) and 26 (Tr. Ex. 39) of-

702 ferred in evidence.

I sold machines for the Haag Brothers Company of Peoria, I think in 1915, about a month after I was with the Superior Company.

The Haag machines, which were being offered for sale to the public during the time I was with Haag Brothers, were a peg dolly type and the cylinder type and the rubboard disc type. As far as my knowledge goes, all wood tubs were corrugated on the inside and bottom. To the best of my knowledge Plaintiff's Exhibit 4 (Tr. Ex. 25) is a circular describing the line of washing machines the Haag Brothers Company, of

Peoria, manufactured during the time I was in their employ.

Q68. Please state briefly what the circular illustrates in the way of a washing machine. A. Well, it illustrates one of their electrically operated machines fitted with either the peg dolly type of dasher or the rub board disc type.

The circular states:

> "Every housewife will like the two washing principles combined in one machine. A flat dasher for rubbing the delicate fabrics, laces, etc., and the peg dolly for general washing." 704

During the time I was with them, I was instructed to and made those representations to the trade.

I would say that Plaintiff's Exhibit 5 (Tr. Ex. 48) is an exact duplicate of one of the old Haag machines referred to in the circular. I would say that instead of having three pegs, the peg dolly, Plaintiff's Exhibit 5-A (Tr. Ex. 48-A) was 705 fitted with four pegs, and save for wear and tear it illustrates the type of peg dolly. The rub board disc marked Plaintiff's Exhibit 5-B (Tr. Ex. 48-B), save for wear and tear, is a fair representation of the rub board dollies which I sold for Haag Brothers as a part of the washing machine equipment, while representing that company.

Describing the operation of the Haag machine which I was selling and which utilized the rub board dolly, you first put hot water in, then the clothes, and then took the rub board disc and picked it up by the handles and set it over the

post allowing it to settle down on top of the clothes; then close the lid and the machine went into operation. It would rub the clothes back and forth on the top and cause the clothes to move back and forth in the water and rub against the sides and bottom of the tub.

After I left Haag Brothers, from January, 1916, until December 31, 1921, I was with the One Minute Manufacturing Company, of Newton, Iowa, selling washing machines wholesale
707 and retail. That company did not manufacture any rub board disc machines that I know of. In 1922, I went into business for myself. During the years I was selling for Voss, Superior or Haag I knew that other companies had manufactured washing machines equipped with rub board discs. I had seen the machines on dealers' floors, or seen advertising matter relating to them. One was the Dietz, of Cincinnati, Bluffton, of Bluffton, Ohio, and the Woodrow, of Newton, Iowa. The Boss Washing Machine Company, of Cincinnati, the King washer made in Wolcott, In-
708 diana, and others I cannot recall now. The circular, Plaintiff's Exhibit 27 (Tr. Ex. 40), is a fair representation of the rub board disc machine put out by the King Washing Machine Company. That circular designates it is a rub board dolly and states: "Rub Board Dolly can be furnished on any style machine."

I recognize the circular, Plaintiff's Exhibit 28 (Tr. Ex. 41), bearing the name, Bluffton Manufacturing Company, as correctly illustrating the rub board disc type washing machine put out by that company. On page 3 of that circular are the words: "Notice the large, round rubbing board." That was the way they referred to it

709 in the trade. The rub board shown there is substantially like the other ones I have referred to. It served the same purpose. The appearance is substantially the same as the Haag, Superior and King with the exception that there might be more or less ribs on the others and more or less holes, but the general construction and operation of each and all of them are the same. I met those machines in competition while I was in business.

710 Q96. I believe you also referred to a Dietz. I call your attention to Plaintiff's Exhibit 14, and particularly to the last page on the inside of the fold, and ask you whether or not that fairly represents the rub board disc put out by that company to which you have referred and during the time you were with these other companies. A. I couldn't say it was positively manufactured during the time that I was with these other firms, but I have seen the machines on the floor.

Q97. That is a fair representation of the machine you saw on the floor? A. Yes.

711 Q98. And that was designated as the rub board? A. Yes, I believe their advertising matter advertised it as a rub board machine.

That type of machine was well known and understood back as far as my first connection with Voss as a rub board type. I am familiar with and have seen in operation the Maytag Gyrafoam machine several times. I have used personally a washing machine of the Maytag Gyrafoam type. I think the Big Three Speed King that was manufactured by Barlow & Selig, Ripon, Wisconsin, is of that type. I have had this machine about seven years and I have done the majority of the washings in our home for

the past seven years, my wife being employed outside of the home up until the past year and a half. The circular, Plaintiff's Exhibit 29 (Tr. Ex. 42) fairly represents the washing machine which I have had in my home for the past seven years. It is an exact duplicate. With my experience with this machine I would say that the operation with the peg dolly type and the rub board disc type, that this type was altogether different.

Q105. I will ask you as compared with the old
713 rub board type machines and peg dolly type machines, what have you found in your experience to be the outstanding difference in operation between such old machines and the Maytag Gyrafoam type? A. With my experience with this machine I would say that the operation with the peg dolly type and the rub board disc type this type here were altogether different. The peg dolly type and the rub board disc type were fundamentally rubbing—I will say that a little differently. I want to word it differently. It was the operation of rubbing the clothes, and with the
714 type of bottom agitator, or gyrator, whatever you might call it, is distinctly a violent operation or agitation of the water through the clothes.

I have seen and am familiar with the Maytag Gyrafoam machine in action and I would point out the same differences as I have previously stated. From my seven years use of the Gyratator machine shown in Plaintiff's Exhibit 29, I am further convinced that this difference is an established fact. I am not connected with the Maytag Company in any way and have never been and am not interested in this lawsuit in any way. The Boss Washing Machine Company, whose

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folder I testified about, is the same company that I testified had made a rub board disc type machine. This circular describes the rub board as a large flat board under the title "Distinctive Features," and is offered in evidence as Plaintiff's Exhibit 30 (Tr. Ex. 43). (Exhibits previously referred to by witness offered in evidence.)

Cross Examination by Mr. Free:

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Besides the rub board agitators and milk stool dolly agitator, I have seen the vacuum and the cylinder, oscillator type and the bottom agitator or gyratator type. I first saw a bottom agitator type about 1923.

I never saw the inverted type prior to 1923. I have seen machines that were operated with a shaft running up through the pipe earlier than that but not where the agitator was turned upside down, like in the Maytag or the Big Three.

XQ118. Have you ever seen an agitator type machine prior to 1923 with the agitator above instead of down at the bottom of the tub? A. Yes.

717

XQ119. When and what make was it? A. The Haag, the Superior Machine Company at Sterling, the White Lily, the Woodrow. You said aside from those that I have mentioned?

XQ120. I have reference to the top agitator type. A. You mean where the—

XQ121. You have discussed the bottom agitator as being in the Maytag and Big Three Machines. A. Yes.

XQ122. Now I want you to talk about the overhead agitators. A. You mean of the type of this machine where the top sits down?

XQ123. I mean the agitator with blades on it, the same thing you were talking about a while ago as being an agitator as distinguished from the rubboard.

Mr. Loftus: Your first question was not clear, and the last one is very indefinite.

The Witness: Yes, I will strike out, then the Woodrow.

Mr. Loftus: I make objection to it because
719 it is meaningless. It would be just a waste of time.

The Witness: You said prior to 1923?

Mr. Free: Yes.

The Witness: Will you please read my answer there?

(The answer to XQ119 was read.)

The Witness: I would strike out the White Lily and the Woodrow. While they are what we call the agitator machine, they are a different type of agitator from the Maytag and Big Three. I
720 cannot think of any others just now.

XQ124. Have you ever seen any bottom agitator machines other than Maytag and Big Three prior to 1923? A. Well, I did not see the Big Three prior to 1923. If you are referring to types similar to the Maytag, I will say no.

XQ125. You never have? A. No.

The Haag rub board moves the clothes back and forth in the water to a more or less extent, I would not say that the clothes turned over from top to bottom of the tub. The rub board disc moves back and forth and it would naturally cause the clothes to move back and forth and

be more or less in motion all the way down through, but as to complete turning over of the clothes I wouldn't say that it did. The clothes would be rubbed upon each other and against the bottom and sides of the tub. As to whether they would be cleaned from top to bottom of the tub, I wouldn't say. That all depends on how dirty they are. I wouldn't say that if you ran the machine for a long enough time to clean the clothes, that they would all be uniformly clean from top to bottom in that machine. My ex- 722
perience did not prove that. The clothes would be more liable to be clean on top where the rub board disc came in contact with them, than they would be on the bottom. I do not say that the clothes stayed still for fifteen minutes and did not move around, but for washing clothes, the rubbing of clothes on a board, you have got to give a certain amount of speed to your rubbing or you would not get the clothes clean, and by that I mean to say that the clothes did not move as fast on the bottom as they would in the top of the tub where the rub board dolly came in 723
contact with them. I would say that they moved some at the bottom of the tub. I stopped selling Voss machines in 1914 to accept a position with the Superior Manufacturing Company, because they gave me more money. I left Superior in 1915 because I had smallpox that year and could not travel on the road. I sold Haag washers about a month. I have seen Haag machines made later than 1915.

Referring to Plaintiff's Exhibit 19 (Tr. Ex. 32), the Haag circular, I never saw a machine with that particular agitator marked A, but they

furnished one similar to it, similar to Plaintiff's Exhibit 5 (Tr. Ex. 48).

XQ141. You don't know anything about that type of agitator marked A on Plaintiff's Exhibit 19? A. No. When I speak of this I am speaking of this particular machine here as being one similar to that.

XQ142. You mean Plaintiff's Exhibit 5 over here in the corner? A. Yes.

XQ143. Now, referring to Defendant's Cross-
725 Exhibit X. I take it that you never saw an agitator of the type marked A, although you may have seen one of the type marked B; is that right? A. Yes.

Mr. Loftus: You might clear up the point. I think your question is unfair and catchy. I do not like it.

XQ. You testified a moment ago you sold and offered for sale one similar. I don't know whether you heard counsel's question. Your answer tended to mean that you had not sold one
726 identically like A but had sold one like B.

The Witness: Wasn't that the question?

Mr. Loftus: What you meant to say was you did not sell one identically like A?

The Witness: But I have one like B.

Mr. Free: That is what I mean, anyhow.

The Witness: That is what I thought you said, because I had said before that I was not familiar with that type.

Re-direct Examination by Mr. Loftus:

RDQ144. As I understand your answer, in order to clear up the record, all you meant to say

was you had not sold for Haag that machine equipped with an agitator substantially identical with the one marked A. A. No.

RDQ145. But had sold peg machines and one with a rub board like the one marked B. A. Yes.

RDQ146. You did know about the King machine, though? A. Yes.

I knew about the King machine shown in the King circular, Plaintiff's Exhibit 27 (Tr. Ex. 40). I have seen a King washer equipped with that identical rub board disc, or rub board dolly. 728

The Maytag Gyrafoam machine was the first one of that type that I ever saw. Some machines had different kind of agitators, but they were not of that type. We spoke about agitator washers, but there is a different kind of agitator washers. Some we might have called agitators before, but they were not of that type.

RDQ150. Those you mentioned as having agitators at the top, you meant those that had the rub board at the top? A. That has more agitation of the clothes.

RDQ151. And you referred to the ones you 729 had previously referred to as having rub boards at the top? A. Yes.

Re-cross Examination by Mr. Free:

In the trade, the King machine type was not referred to really as an agitation of the clothes as much as some of the other types operating like Plaintiff's Exhibit 5 (Tr. Ex. 48). The peg type would give more of an agitation to the clothes, in my estimation, than the type of rub board dolly in the King washer. On account of the shortness of the ribs, it naturally would not

grab hold of the clothes and agitate them as much as a peg of that length. I never used a King machine and never saw a machine of the King or Haag type, that is the Haag agitator type marked A, D fendant's Chicago Cross-Exhibit X in operatio have seen that on dealers' floors. That would probably give a little more rubbing operation to the clothes on account of the length of the strips on the underside of the dolly than the shorter one.

731 RXQ162. The higher strips, such as the King agitator, have to also move more water than the lower strips, would they not? A. I judge that it would.

RXQ163. Therefore you would get more water agitation with the King type agitator than you would with the low strip type agitator? A. Yes.

I never saw a King machine with an agitator such as is shown in Plaintiff's Exhibit 27 (Tr. Ex. 40) located at the bottom of the tub. I have never seen any other machine like that with the agitator in the bottom of the tub.

732 I don't think they were made. I am merely speaking of my own experience, of course. I don't know that they were never made.

ESTHER S. RYAN, called as a witness on behalf of Plaintiff.

Direct Examination by Mr. Loftus:

My name is Esther S. Ryan, residence, Moorhead, Minnesota. I used a Haag washing machine like Plaintiff's Exhibit 5 (Tr. Ex. 48) from

1918 until 1919. The machine I had was the same as Plaintiff's Exhibit 5 (Tr. Ex. 48). I did not use the metal dolly.

In using the machine I would first soak my clothes over night, take them and wring them out and put them in— First, I would add the water from the boiler in which soap had been melted and add the water to the machine and then place my clothes in it. I couldn't say how many sheets, I should judge around six sheets.

Next I put on the dolly, I used the washboard 734
type of dolly first, that is one with the flat disc with the ribs as shown in Plaintiff's Exhibit 5-B (Tr. Ex. 48-B). I placed that in the tub on the shaft down on the clothes and closed the cover and turned on the motor. My linens, bed linens and table linens, I judge took about twenty minutes to wash. Then, I would take the clock and figure about twenty minutes to bed linens and table linens. I would take those out and rub the more soiled ones, the ones that had spots on them, and place them in the boiler and boil from ten to fifteen minutes. As a rule, I would not 735
rub the linens after that because they were not as soiled as other clothes that were dirtier.

The rub board disc then rubbed the top of the clothes and I would have to take a stick and turn them over because only part of the clothes were being washed at a time. I would turn them over three or four times in washing a batch of clothes. After I got all through I would have to hand scrub such things as collars and cuffs, children's bloomers and stockings. I could not wash any lingerie or curtains of any kind or blankets in the Haag machine. Curtains and lingerie would tear, and the blankets also. When I turned the

clothes I would have to open the cover and use my clothes stick after removing the rub board entirely from the machine, then after turning the clothes over with a clothes stick so the bottom would be more to the top I would put the scrub board back and start the machine and that would continue for three or four times until I figured the scrub board had touched the clothes as closely as possible. I used the stick to turn the clothes over because the top clothes were be-
737 ing rubbed by the rub board and those in between or underneath were not getting the right action that I would need to rub the clothes to get them clean. During each batch of washing I found it necessary to repeat that operation three or four times and that was generally true during all the time I used the machine. The more soiled clothes I washed at least thirty minutes. I used the machine for a year or more and then stopped until 1922 and whenever I used the machine I had to go through the same operations. I always had to have a washboard and always
738 had to scrub certain of the clothes on it such as dish wipers, collars and cuffs and real soiled things. The reason I got a machine in 1922 was that my brother-in-law and wife and baby came to live at our house.

Cross Examination by Mr. Free:

I used the Haag machine from between 1918 and 1919, then I discontinued using it until 1922 and from that time I used it until 1928. I used the machine because I have a large family and it got some of the clothes clean so that I would not have to rub so much, and the wringer helped

so much. The machine did not get my clothes clean. I was very much dissatisfied with the machine and told Mr. Ryan that I was dissatisfied because it did not wash the clothes clean; but he seemed satisfied with it because he was selling them at the time and I didn't get a machine until he quit, until he went to work for Maytag. I have known about the Maytag and seen the work of the Maytag before that. In 1926, I went to Fargo, North Dakota, and visited my brother-in-law and sister-in-law and used the machine 740
there, a Maytag, and the difference between the machines was like night and day. After that I surely did hate to come back to my Haag.

I did not get a Maytag machine until Mr. Ryan went to work for the Maytag Company. While Mr. Ryan was selling Haag, Mr. Bands of the Maytag Company wanted him to go to work for him and said he would leave it to me to figure out the machine I would prefer. Comparing the two machines I would choose the Maytag. I used the same kind of soap in the Maytag as I did in the Haag, Crystal White soap, or other kinds 741
of soap. The Haag machine would not wash quite as much clothes as the Maytag. Then, it took me at least five hours to wash with the Haag and two and a half hours to wash with my Maytag, and I have many more clothes now. I have five daughters to wash for now.

Re-direct Examination by Mr. Loftus:

With the Haag machine I started using the rub board dolly and went to the peg and wore the peg out. I used the rub board from 1918 to 1919, until I went to the peg dolly, and then I

had the peg dolly in my machine from 1922 on. In using the Haag machine I used the peg type dolly like Plaintiff's Exhibit 5-A (Tr. Ex. 48-A) most of the time. When I used the rub board I would put the peg dolly back in for the dirtier clothes. I used the peg dolly all the time from 1922 on because it gave more action, it swung the clothes about and I got better results with the peg than I did with the rub board dolly.

743 Mr. Free: I offer in evidence Defendant's Chicago Cross-Exhibits W, X, Y and Z for identification.

STIPULATION.

It is stipulated that photostatic copies of pages 53, 54 and 55 of Luthy & Company catalog, Defendant's Cross-Exhibit Z, and photostatic copies of pages 56, 57, 60 and 61 of the Huber Manufacturing Company catalog, Plaintiff's Exhibit 7 (Tr. Ex. 26), may be used in evidence in lieu
744 of the corresponding catalogs, which are to be retained in the custody of counsel introducing them, subject to production for examination or reference upon request.

CHESTER F. GROBER, called as a witness on behalf of the Plaintiff.

Direct Examination by Mr. Loftus:

My name is Chester F. Grober, age forty, residence, 10447 Sangamon Street, Chicago, Illinois. I am engaged in painting and decorating and

745

was with the Chicago Washing Machine Company from about 1915 to 1924. The main office was located at 4119 West Madison Street. Later they moved over on Crawford and Madison. It started out with one store and later it had around eight or nine stores. Its business was selling washing machines, vacuum cleaners and electric ironers.

We sold Apex, Coffields and Thors. That was the Apex oscillator at that time. At that time there was another, the Rotopex, the Up-to-Date, 746
American Beauty, the ABC and the Haag machine. The Haag machine was made in Peoria, Illinois, by the Haag Brothers. I started with the Chicago Washing Machine Company and practically did everything from delivering, service, right up the line, salesman and manager of the store. I was manager of and opened the store at 1962 Milwaukee Avenue, Chicago, and later at 6508 South Halsted Street. I sold and operated these Haag machines which my company handled. We had the dolly type with four pegs and we had the rib dolly in there too. The 747
circular marked Plaintiff's Exhibit 19 (Tr. Ex. 32) is a circular which was issued from the store I was manager of at 6508 South Halsted Street. It has my name on it. I had a rubber stamp made up and would stamp them. It is a familiar Haag circular. These circulars were supplied to the Chicago Washing Machine Company by the Haag Washing Machine Company, of Peoria, Illinois. We gave these circulars to the prospects, whoever was interested in this type of washing machine, and they were used in connection with the sale of the Haag machine. I was manager of the store at 6508 South

748 *Chester F. Grober—For Plaintiff—Direct.*

Halsted Street, Chicago, opening it up the first part of October, 1920, and was there until about May or June, 1922. I am familiar with the rubber stamp and I think I gave that circular out myself. I was at the store and had a girl there. The cut designated with the letter B on Plaintiff's Exhibit 19 (Tr. Ex. 32) represents a dolly type Haag machine and shows the exact machine that we sold. It is one of the later type machines according to this casting on the
749 wringer here, but we were selling that machine in 1920. It shows the peg type dolly. The rib dolly is shown on the back of the circular. It is marked with a letter A. To operate it you put the water in the machine and put your clothes in and then you lay this rib dolly on top of the clothes. The dolly works back and forth. It made about a three-quarter of a turn and it would slosh the clothes back and forth in the water, that is the clothes that it came in contact with. We did not have any success with the form of rib dolly indicated by the letter A on
750 Plaintiff's Exhibit 19 (Tr. Ex. 32), as compared with the peg dolly. It was just merely a talking point on selling a machine to a new customer. A good many people were afraid of the peg dolly tearing the clothes and this was a talking point against any of that fear. It was supposed to be for the finer clothes and that was the main thing we recommended it for. As far as the actual washing was concerned, we did not get any results with it at all. We were afraid of it on a demonstration. It would be discarded and not used. On a demonstration we would always put the peg dolly in and then we would tell them that this rib dolly was used for the

finer clothes, and tell them to put it on top of the clothes, the same as the peg dolly type, but otherwise it was not practical. In fact, we would go back on the jobs and find that they were brand new, never used. After a woman used it once or twice she would discover it was not practical.

Referring to the rib dolly like that shown in the cut marked B on Defendant's Chicago Cross-Exhibit X, we sold rib dollies like that in connection with the Haag machine. Most of them 752
came that way. I think those were the first ones that came out. A and B were the ones that they were equipped with. We had trouble with this form A. The ribs would come off, and afterwards they came out with the form B. Form B is the one with the larger number of ribs on it and form A is the one with the fewer number and the deeper ribs. They were about an inch and three-quarters and the others were about three-quarters of an inch. I couldn't tell how soon after I started to sell form A that it was supplanted by the form B. When I opened 753
the south side store, I don't recall having any of the form type A. As far as the form B worked it would just work back and forth and the clothes that were next to the ribs would naturally get a little rubbing there and get a sloshing through the water; but there would not be any actual real sloshing in there unless we had the peg dolly. All it would do would be just to ride back and forth on top of the clothes. It wouldn't get to the other clothes unless those were next to the rib dolly. That is one reason why it was not practical.

As to the results in attempting to use either

A or B compared with the results accomplished by using the peg dolly, there was just as much difference as there is between day and night because you would not get the clothes clean with A or B, whereas you would get the clothes clean with the peg dolly. Sheets or pillow cases, napkins, or things just slightly soiled may be washed with form B and might be satisfactory to some women, but to others it would not be. You would not get quick results at all, where
755 you would take fifteen minutes with the peg dolly type it would probably take you an hour and a half to get results with forms A and B. Form B would just merely slide across over the clothes. There would be no grab there at all—Nothing to make the clothes move outside of the ordinary action of the rib dolly working back and forth. In using forms A and B of the rib dolly they rested on the clothes and the ribs were depressed into the clothes. The peg would go away down into the clothes and this rib dolly B would just lay on top. It would not go
756 down into the clothes at all. As to the extent I called on housewives who used these washing machines, I went back to see those that we sold. I would get back from a collection standpoint and service and I would always get in the basement to see the machine, how it looked, and so forth. Probably got more chance to see the machine than an ordinary salesman would. If, in connection with that work, the rib dollies forms A or B were laying around the basement, they would be practically brand new and the peg dolly would show usage, and the rib dolly would not. In a good many cases where a machine

would come back and we did not have a rib dolly, if it were misplaced, or something like that, we would send it out without one. The customers would not use the rib dollies with form A or B. One thing it would not get the clothes clean and it was not fast enough. In a good many cases they would complain about the clothes being in the same position as when you put them in the tub. Of course, our only argument in combating that, if they were dissatisfied, was, it was just purposely for finer clothes, 758
it was not meant for the dirty clothes.

I do not remember seeing the circular like Plaintiff's Exhibit 4 (Tr. Ex. 25), but the machine there shown is the older type Haag machine. It is a fair representation of that machine which we sold. The peg dolly and the low rib Haag dolly is fairly represented in that circular. The machine, Plaintiff's Exhibit 5 (Tr. Ex. 48) is the Haag machine. Plaintiff's Exhibit 5-B (Tr. Ex. 48B) is the rib dolly for the Haag machine. That would be the low rib dolly. If I remember right, this one here, the first 759
ones that came out, did not have this wood plug in the center here. We recommended to anyone that would be interested in the dolly type machine the Haag, because of the added feature of the rib dolly. The general idea throughout the washing machine business was that the peg dolly type machine was hard on the clothes, that it was a cheaper constructed machine than the higher priced machines, and that was one reason why we had that rib dolly in there. We always sold the Haag machine with the peg dolly and always threw in the other dolly for good measure.

From our experience we found that the Haag peg dolly would wash the clothes clean and the rib dolly would not. There was no efficiency to it. It did not do the work, that is all. Your clothes would just merely stay in one position. The clothes on the bottom would not get turned around at all, and when you would put this rib dolly right on top of the clothes it would just slide back and forth on top of those pieces there and the clothes on the bottom would not get
761 turned around at all; while with the peg dolly, they would. It would grab the clothes and slosh them back and forth in the water, and the rib dolly could not do that.

In a good many cases, if I would get back in the basement to service the machine or see the party, I would see the rib dolly there and would ask the reason why they did not use it, and they would say it did not get the clothes clean. Our own practical experience told us they would not do the work. Of course, we would just question them in an off-handed way because the thing
762 would be new and not show any wear, and the reason for their not using it was they could not get any results.

The peg dolly, Plaintiff's Exhibit 5-A (Tr. Ex. 48A) is the same as the peg dolly furnished with the Haag machine except that it had four pegs. One peg is missing on this one. Otherwise it seems to be the same, except that this is badly worn. In selling or attempting to sell the Haag machine and seeking to demonstrate to a customer what it would do, every time I demonstrated a machine I always used the peg dolly. I would never use the rib dolly because if the sale of the machine depended on the re-

sults of the demonstration there was no need of using it, because you would just lose your sale, that was all. I demonstrated all the machines that was sold at our store, that is, at 6508, and when I was delivering them I always demonstrated them; demonstrated every machine that I delivered every time; I stayed right in the actual washing.

Cross Examination by Mr. Edmonds:

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I do not recall the circular, Plaintiff's Exhibit 21 (Tr. Ex. 34). It is obvious to me that it is a circular illustrative and descriptive of the Haag washing machine. The cuts on the left-hand side labeled A and B are the peg dolly and the rib dolly that I have been talking about. I do not recall having seen the form marked A on Plaintiff's Exhibit 21 (Tr. Ex. 34). There is no difference in looks between the dimension of the rib dolly marked A on Plaintiff's Exhibit 21 (Tr. Ex. 34) and the rib dolly marked A on Defendant's Chicago Cross-Exhibit X. The rib 765 is a little higher there and it has a metal rod on it. Otherwise, the design is like it. As to any difference between the one marked A on Plaintiff's Exhibit 21 (Tr. Ex. 34) and the one marked A on Plaintiff's Exhibit 19 (Tr. Ex. 32), there is a difference in the iron rod being on there, and then the rib being higher. The rib dolly marked A on Plaintiff's Exhibit 21 (Tr. Ex. 34) has ribs that are higher than those which I am familiar with. The ones that were used most were three-quarter inch and there were others an inch and three-quarters which are the ones that are illustrated by A on Defendant's Chi-

cago Cross-Exhibits X and A on Plaintiff's Exhibit 19 (Tr. Ex. 32).

Judging from the photograph, the ribs on Plaintiff's Exhibit 21 (Tr. Ex. 34) are of no greater height than the ribs on dolly A of Defendant's Chicago Cross Exhibit X and Plaintiff's Exhibit 19 (Tr. Ex. 32). The reason that it looks different is because of the different photographs. A of Plaintiff's Exhibit 21 (Tr. Ex. 34) was taken on a slant and Plaintiff's Ex-
767 hibit 19 (Tr. Ex. 32) was taken on a face. When I look at this photograph, Plaintiff's Exhibit 21 (Tr. Ex. 34), it looks altogether different than when I look at Defendant's Chicago Cross-Exhibit X and Plaintiff's Exhibit 19 (Tr. Ex. 32). I was familiar with the one, Defendant's Chicago Cross-Exhibit X; the one illustrated on A of Defendant's Chicago Cross-Exhibit X looks to me to be the same as the illustration at A on Plaintiff's Exhibit 19 (Tr. Ex. 32). As far as the photograph is concerned, it illustrates the A on Defendant's Chicago Cross-Exhibit X and
768 Plaintiff's Exhibit 19 (Tr. Ex. 32) showing a rib dolly whose ribs are not as high as those of the dolly marked A on Plaintiff's Exhibit 21 (Tr. Ex. 34). I am familiar with the dollies illustrated at A on Defendant's Chicago Cross-Exhibit X and Plaintiff's Exhibit 19 (Tr. Ex. 32); and the ones which we were using were the three-quarters inch rib as B on Defendant's Chicago Cross-Exhibit X. I am now referring to A of Defendant's Chicago Cross Exhibit X. We did not have many of those marked A on Defendant's Chicago Cross-Exhibit X and Plaintiff's Exhibit 19 (Tr. Ex. 32), which had vanes about an inch and three-quarters high. With

a peg dolly machine, when the machine was in operation, the ends of the pegs would slosh the clothes back and forth in the water. The clothes which the pegs came in contact with would be dragged through the water, the others would follow their own course. That is what I meant when I said the clothes were sloshed through the water. That would not happen with the rib dolly and did not occur. Some pieces probably would follow with it, if they were smaller pieces they would naturally follow; but if you take a 770
sheet, or any large pieces, there would be nothing for this rib dolly to grab there and carry it around. It would just simply slosh it around. If it was handkerchiefs or napkins or something small, it probably would follow with the rib dolly there. With the rib dolly this action of sloshing occurred to a very much less degree. With a normal load of clothes in the tub and the rib dolly in position, this rib dolly would follow the clothes. Its own weight would carry it down into contact with the clothes. With a normal load of clothes in the tub it would carry 771
it down into contact with the clothes and the disc of the dolly would not be at approximately the surface of the water in the tub. If the rib dolly gets water logged of its own weight, it goes down below the water. If you have an empty tub, it will go down to the bottom of the tub. With a normal load of clothes in the tub and a normal amount of water and the rib dolly put down on top, the dolly would be more or less sustained with its contact with the clothes and would remain near the surface of the water. I would not say that with a normal amount of clothes in the tub and a normal amount of water

and you put the peg dolly in position, the dolly will be sustained in a position near the surface of the water in the tub. With a normal load of clothes in the Haag machine and a normal load of water, the rib dolly of the type A on Defendant's Chicago Cross-Exhibit X and Plaintiff's Exhibit 19 (Tr. Ex. 32), will be the same as B, about on top of the clothes. As to where it would be with reference to the surface of the water, that would depend on how much water
773 you have in there. It would be right on top with the normal amount of clothes. With a normal load of clothes in the tub and a normal amount of water, the rib dolly would be at about the surface of the water, it couldn't go any other place. Then, if the machine is operated the rib dolly will be oscillated by the motor. I believe the oscillation was about one-half to three-quarters of the circumference. The A dolly would have a little more tendency to take hold of the clothes than B would, because there is more space between the ribs on A than there is
774 on B, and there would be more of a tendency to take hold of the clothes there and push them around a little, whereas B would just slide across and then the small pieces would be forced around with it.

B dolly would take hold of the smaller pieces, but would not take hold of the larger pieces. A dolly would take hold of the clothes more than B because there is more space in between there. The peg dolly would take hold of the clothes very much more. I would say the difference between these two rib dollies on the one hand and the peg dolly on the other were so radical that you would lose a sale if you would use just

the rib dolly. The rib dolly would take hold of the clothes and drag them through the water to only a very small extent, and in the case of small pieces of clothes practically not at all, whereas the peg dolly would take hold of the clothes continually and slosh them, but the rib dolly would not take the larger pieces, it would take the smaller pieces. That is why it was recommended for finer clothes. The rib dolly would not take hold of the larger pieces at all and the smaller pieces it would take hold of only 776
to a small degree.

Considering the rib dolly of the Haag machine marked A on Defendant's Chicago Cross-Exhibit X and Plaintiff's Exhibit 19 (Tr. Ex. 32), with a normal load and a normal load of water and the dolly oscillated by power, the only effect that it would have there would be that the rib dolly would ride back and forth on top of the clothes.

There would be a movement of the water back and forth, but it would not create any vacuum. There is no suction. There is just a sloshing 777
of the clothes back in the water. There might be some term you could use but all it does, it works back and forth in the water, and the rib agitator just makes a slight movement of the water. So far as the actual sloshing of the clothes, it does not do it. The dolly moves the water back and forth. I do not recall just what the speed of oscillation of the dolly was. We timed it several times there. If a machine was slower, we would not get the results, or if we had too large a pulley on there and it went too fast, if the customer complained about it not washing clean, we always checked the oscillations back and

forth to ascertain if the motor was running too fast or if it was slow or if the belt was sliding. I do not recall how fast it had to go to go fast enough. I do not remember how fast the oscillations were. I would only be guessing if I were to say how fast. At the time I was quite familiar with it because as soon as the belt would slip it would cut down the efficiency of the washing. When the rib dolly, like A on Defendant's Cross-Exhibit X, was oscillated and the ribs
779 acted on the water in the vicinity of the ribs, the movement it gave to the water was back and forth circumferentially around the tub. It would all depend on the clothes. The water would have a tendency to go back against itself and forth again. That is the only movement of the water that I can recall.

As far as the action on the water is concerned, you couldn't get any action on the water because it was laying on top of your clothes, had to move all of the clothes in the water. That would give your action in the water. If you were
780 running it empty, you would get action of the ribs on the water.

With a normal load of clothes and a normal amount of water, unless the clothes were small, there would be no sloshing of the clothes occasioned by this rib dolly. The movement of the dolly is not expended upon the water in the tub. It is on top of the clothes. It rubs the clothes that are on top and what small pieces will follow with it. The larger pieces will practically stay in their place. You take a large sheet or any large pieces there around that post and that rib dolly could never pick up a sheet and carry it around three-quarters of a turn and carry it

back again because there is no grab to it. The small pieces will follow with it and get the rubbing when they come in contact with the ribs. 781

The effect of the dolly as there used is just cutting through the water, and naturally what little action you get in the water is created from the ribs there. Otherwise, it is just cutting through the water; there is no soft pedal put on top to make the water more active. It is a smooth top surface.

To a small degree those ribs on the rib dolly push the water ahead of them and then push it back. 782

XQ167. Pushing it ahead of the ribs all the time, first one way and then the other? A. Of course, when that dolly comes back this way it is forcing the water and the water coming by it, and when you go back, naturally that water is going to go the other way.

XQ168. What happens as a result? A. Well, you create an action there.

XQ169. What action would you create? A. I really couldn't say what you would call that action. It doesn't amount to anything because this was just like you take a stick and stir it in the water; you create an action there and there is a movement, and naturally you have got to have the water movement there. 783

I sold those machines personally in 1920, 1921 and part of 1922. I have demonstrated and delivered many Haag machines prior to 1920. We had them in 1916, 1917 and 1918. That is, machines illustrated on Plaintiff's Exhibit 21 (Tr. Ex. 34) and 19 (Tr. Ex. 32) and Defendant's Chicago Cross-Exhibit X. I would say in 1918 and 1919, to be sure, we had them. I do not

know just when the Chicago Washing Machine Company started to buy them. I do not know whether they were buying them at the beginning of their existence or not. We handled them in 1918 but I did not sell them personally in 1918.

We had in 1918 both of the machines illustrated in those circulars. In 1919 I had something to do with the sale of Haag machines of the type illustrated on Defendant's Chicago Cross-Exhibit X and Plaintiff's Exhibits 19 and
785 21 (Tr. Exs. 32 and 34). It seems to me there was a period we did not have the rib dolly. That was in the first part of the sale of the machine. I do not recall exactly the year, probably around 1918 or 1919. I recall that we had these rib dollies such as shown on A and B on Defendant's Chicago Cross-Exhibit X in 1920, and I believe we had them in 1918 but I would not say that we did. I am pretty sure that we had them in 1919, but I could not say for sure as to whether we had them in 1918. Then they came out with this A dolly and they would loosen up in there
786 and then we had the B. I am pretty sure that we sold Haag machines such as is shown on Defendant's Chicago Cross-Exhibit X in 1918, but I am not so sure whether we had both types of dollies or just this one in 1918. I only delivered and demonstrated Haag machines in 1917. The 1917 Haag machines had the peg dolly. I know they had the peg dolly but I don't remember about the other. I have no recollection about the rib dolly in 1917 or prior thereto. The first machines we got didn't have a rib dolly in them. I saw a Haag machine while I was selling washers in Chicago which had a metal tub. That was

about 1920. The metal tubs were copper and tinned on the inside, made on the same plan as the wooden tub and had a metal cover on them. The illustration in the lower left-hand corner of Defendant's Chicago Cross-Exhibit W looks like an illustration of the Haag washing machine with which I had to do in 1920 so far as the metal tub is concerned. The wringer looks the same and the construction. It looks from general appearances to be the same. We sold a copper tub of the construction illustrated in that 788
exhibit in 1920. There might be some slight differences in the wringer. I would say that the construction of the washer sold in 1920 with the copper tub, except for the change in the wooden tub and the copper tub is like the ones I have testified about. Defendant's Chicago Cross-Exhibit W shows the construction of a metal tub in place of a wooden tub. That is the only difference I can see without going into detail of each part. I sold them with the metal tub. They made changes over night. This metal tub shown in Defendant's Chicago Cross-Exhibit W, had a 789
power shaft with a motor extending up through the bottom of the tub and the peg or rib dolly was to be mounted on that. The inner surface of the wall of the tub was smooth.

I never, while in the washing machine business, heard in those years of a washing machine called the Muskegon machine.

Re-direct Examination by Mr. Loftus:

I was in the washing machine business for myself in 1924 and after that for a while. It has been seven or eight years since I have had any

connection with the washing machine business. I am not connected with the washing machine business at this time or interested in any company. Regarding my previous testimony that it appeared from the photographs and from the position from which they were taken that the rib in the rub board Plaintiff's Exhibit 21 (Tr. Ex. 34) appeared to be greater in height than the rib in the rub board shown in form A in Defendant's Chicago Cross-Exhibit X and A on
791 Plaintiff's Exhibit 19 (Tr. Ex. 32), all I meant to say was that it so appeared from the position in which the photographs were taken. It was a fact in the Haag machine, using the peg dolly, which grips a bunch of clothes and swishes the clothes back and forth through the water, that in that operation you move the water. The peg dolly moves a larger volume of clothes than the rib dolly. With the rib dolly only the clothes at the top were moved. In moving the clothes it would naturally have to move with the force of the motor there and your mechanism would
792 naturally make them move back and forth and it would have to move anything that was in contact with it. It moved only the upper part of the clothes. I first started the selling of Haag machine with the rib dolly in 1920 and I know that I handled Haag machines for a while equipped only with a peg dolly and later on it was equipped with both the peg and the rib dolly.

There is no measurement given on Plaintiff's Exhibit 21, or any information given there as to the height or depth of the ribs on the rub boards, but I know that the Haag rub boards that we first tried to sell had ribs approximately one

and three-quarters inches in depth, and later the ribs were about three-quarters of an inch in depth. The high rib would get more dragging of the clothes.

Deposition of OSCAR GEORGE BEUSHAUSEN, called as a witness on behalf of the Plaintiff.

Direct Examination by Mr. Loftus:

My name is Oscar George Beushausen; age, 59; residence, 2728 Arbor Avenue, Cincinnati, Ohio.

I was City Salesman and acted in the capacity of Secretary and Treasurer of The John Dietz Manufacturing Company, of Cincinnati, from 1908 until 1913, inclusive. That company manufactured washing machines, both water and electric. In the water type they manufactured the two types called the pin dolly and the rub board. Later they branched out into the electric. The rub board type was put on the market primarily to offset the fact that they were having more or less trouble with the pin type agitator in the handling of the clothes. The action was more or less rigid and there was quite a bit of tearing of the clothes. We had a little less trouble than the competitors on account of the arrangement that we had with our style agitator, being bolted, with shaft, instead of having a dasher post penetrate through the dasher. Nevertheless the opinion was that pin type agitators were a

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little bit hard on the clothes and had a tendency to tear. So, to obviate that, we put out the rubbing board, which we felt would be a good bit easier on the clothes.

By the pin type I mean the ordinary dolly type. Describing the rub board dolly, it was a flat type agitator. It had, as I recall, about twelve ribs about 7/8" in depth, and they radiated from the center—not directly from the center. In
797 the center of the agitator we had a round disc possibly four inches, and these ribs radiated from that four-inch disc, and there were possibly a dozen one-inch holes drilled in between the agitator ribs to assist in creating a little bit of suction to give us a little bit of suds.

The circular, Plaintiff's Exhibit 14 (Tr. Ex. 28), was put out by The John Dietz Manufacturing Company for the purpose of increasing the sales of its product. I know this circular because I happen to have gotten up the reading matter for it. This circular was gotten out ap-
798 proximately in 1910.

The cut marked B is an exact reproduction of the peg type dolly machine which the Dietz Company was manufacturing and selling. And the one marked A is an exact reproduction of the rub board type machine put out by the Dietz Company. That is the rub board dolly machine which the Dietz Company put out to overcome the objection to the peg dolly. That machine was advertised and sold to the public as the rub board machine and the tub itself was branded as the Dietz Rubboard. Describing the operation the action of the rub board was similar to that as though you were washing on a wash-

board. That was the idea of the machine. The action was not quite as severe, of course, as it would be on a washboard, because you have the water in the machine naturally acting as a sort of a cushion, but the ribs were sufficiently deep to carry the surface clothes around and gently rub them. That, in conjunction with the corrugations in the side and bottom of the tub, gave us what we figured was a little more efficient and desirable washer of the power type than our 800
competitors had.

Referring to objections to the peg type dolly, that objectionable feature was, I might say, more in the competitors' types than it was in our own, because they weighted their agitators. They had a hole bored through the agitator, allowing the agitator to move up and down on the post. When this was in action the clothes would wedge between the agitator and the post, and that forward and backward action would oftentimes tear little holes in the clothes. There was quite a good bit of complaint about that, and we figured 801
that a rub board would eliminate that entirely and that the competition later on to obviate the trouble that they had, resorted to a metallic cup that they fastened to a depth—there was a depth of possibly four inches—that they fastened over the agitator shaft and screwed it onto the agitator. That made the effect of the agitator less efficient because the four pins would be more likely to grip the clothes than it would be if they had a fifth projection through the center.

These four pegs that were used on the old style milk stool dolly would be depressed or driven down into the clothes and take hold of

them with a firm grip and drag them around. The grip with the old milk stool dolly was at point contacts. In the rub board the ribs would naturally be depressed into the clothes and to make that more effective we resorted, after possibly a year, in the manufacture of the machine without the spring, resorted to a heavy brass compression spring that we slid over the agitator shaft to force the agitator down on the
803 top of the clothes to add to the rubbing principle.

We made the representation to the trade that the rub board rubs the clothes upon carrying them through the water and that action did take place. To verify and show that action of the rub board, in different exhibits around the city, we took tubs and cut holes in them and put glass plates in them, and then put the water and the wash in there and the people could see the action through the glass. There was no guess work about it. The whole inside of the
804 tub was corrugated. This circular specified that the rub board should come in contact with the clothes. That was the way it operated. I don't know what it would do if it didn't operate that way.

I left the Dietz Company in 1913 and was with the Princess Company on Pearl Street for approximately three years. They manufactured practically the same type of machine that we had, with a difference in the construction of the motor, but the tubs were identical. They had both the milk stool dolly and the rub board. The circular, Plaintiff's Exhibit 32 (Tr. Ex. 44)

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was probably published by the company (Princess Company) before I went with them because they had started to sell the machine. I started between 1913 and 1914. The sale was, as far as I was concerned, about 75% on the rub board. I always featured the rub board in my efforts to sell the product. I figured the rub board would give the people a little better result and obviate the trouble previously stated, of tearing clothes, which was quite objectionable. 806
Those machines were sold and advertised and represented to the trade as rub board washers. I would say that the rub board machine was very popular in 1910, as having charge of the city sales, I had some forty odd dealers in Cincinnati and across the river handling it: It was quite a well-known type by 1912.

The Dietz sales covered Cincinnati and the outlying districts. We had accounts in Pittsburgh, Chicago and Cleveland, and a good many parts of the country generally over the United States. We went out as far as the coast. The 807
Princess Company was more local. We had a number of outside shipping points, but I had nothing to do with that end of it. From 1916 to 1928 I was with the Boss Washing Machine Company, of Norwood, Ohio. When I went with them in 1916 they were manufacturing and selling the pin type dolly machines and the rub board type machines. There was no difference in operation and construction of the Boss rub board machine from that of the Dietz and the Princess machines. Plaintiff's Exhibit 30 (Tr. Ex. 43) is a circular which was generally used

when I was with the company and I distributed quite a good many of them. It illustrates the Boss line of machines, both the rub board and the peg dolly types. It was the practice of the company to refer to and offer the rub board type of machine to the trade as the rub board machine. They had branded that their Veribest Washer with the rub board agitator. The other one was simply called the Boss Motor Washer
809 with four pins. They described their rub board type machine in their literature as a rub board. There were a number of types of rub board machines being sold in Cincinnati, but they weren't as generally sold here as the Boss because I was covering that territory myself and I didn't allow them in; but there was the Haag and half a dozen other machines that had rub boards. I remember the Haag particularly because one of the men I formerly sold electrics to later on handled the Haag.

Plaintiff's Exhibit 4 (Tr. Ex. 25) fairly rep-
810 resents the Haag rub board machines being sold to which I have just referred. That shows the peg and the rub board dolly to be used interchangeably on the same machine. Bluffton Manufacturing Company put out a rub board type dolly machine and Plaintiff's Exhibit 28 (Tr. Ex. 41) fairly represents it. The agitation method was the same as in the Dietz, Boss and Princess. As far as the rub board itself is concerned, it is the same thing in operation, no difference. The Voss Brothers of Davenport, Iowa, put out a rub board type machine. They were going along about the same time I was

with the Boss machine. A good many of them came out with a rub board type of machine in the form of electrics. The leaflet, Plaintiff's Exhibit 22 (Tr. Ex. 35) fairly represents the rub board type put out by Voss. It is the agitator. It has the same manner of operating as the Boss, Dietz and Princess. All of them had about a five-eighths turn on their agitator. They all did the jobs in substantially the same way and in all of them there was a substantial continuous rubbing operation on the clothes and that was the intended operation in all of them. 811 812

I know that the King washer was put out but I don't know much about it. The cut marked A on the King circular, Plaintiff's Exhibit 27 (Tr. Ex. 40), shows a rub board type washer. It had the same operation as the Princess, Boss and Dietz with probably a slight difference in the size of the agitator, that is all. But the principle involved is the same. They necessarily had to—in some of these tubs where they are using the flat circular rubbing agitator they necessarily had to make their agitators a little bit smaller because the openings in their tubs weren't large enough to admit the same size agitator as was used on the inverted type tubs. But the principle is the same in all of them. Of course, one machine might be a little more efficient than another one on account of the size of the agitator. 813

With the peg type dolly the moving or rubbing power would be applied at point contacts. The rub board, having a larger rubbing surface, came in contact with the entire surface

clothes and carried those around and very gently agitated the clothes that would probably be, I would say, midway between the lid and the base of the tub, that is, the clothes on the upper strata. As to the rub board squeezing the clothes between the rub board and the interior of the tub the only force that we could get on that agitator in addition to the weight, was a compression spring that would force the
815 agitator down; but in view of the fact that that compression spring wasn't over three inches, which would probably have a compression of an inch and a half, I don't think that there was a lot of force put on to carry the clothes around. It carried the surface clothes. The surface clothes coming in contact with the upper strata as you called it, carried them around.

It contacted the clothes with the agitator and whatever corrugations there were around the sides of the tub. There naturally would be some
816 intermingling of the wash, but that intermingling occurred from the agitator coming in contact with the surface clothes ordinarily intermingling with the clothes at the base of the tub. In fact in my demonstration I used to advise the women that it wouldn't be a bad idea to open the lid and mix the clothes up a bit. I mean, to turn the clothes over so that they would come in contact with the rub board. I am familiar with the Maytag Gyrafoam washing machine and have seen it operate in a competitive way to my sorrow. I was thoroughly familiar with the operation.

Comparing the difference in operation of the

Maytag Gyrafoam with the old type I have been discussing, in the old type machines the agitator, regardless of what type it was, came in direct contact with the clothes, and it is my opinion that it was the frictional rubbing operation of that agitator against the clothes that washed them; and in the Maytag type it is a matter of the force of the water—you are throwing that water against and through the clothes, forcing it through to clean the fabric, and that is to my mind what cleans it—you can't do that on a board—and forcing that water through the fabric is what cleans it, without rubbing. 817 818

In selling such rub board type machines as the Dietz, Princess and Boss, we represented the rub board type as being an exaggerated washboard, and the old principle or method of washing after the hand operation formerly, to my knowledge, was the rubbing the clothes on the washboard. No matter what type they used they finally wound up with rubbing them on a washboard. So we concluded that the closer we could get to a washboard in the principle of operating our washer the more desirable and more efficient it would be, and therefore we adopted the 1904 Automatic, as they called it, for water motor or power principles. We say "power principles" because it is usually electric principles. 819

In these old type machines the clothes were washed largely by rubbing action, whereas, in the Maytag Gyrafoam they were washed by forcing the water through the clothes.

I find the Maytag will wash the clothes, I

guess, in more than a third less time, and washes them more efficiently. Now that is the experience that I had in a competitive way. I had quite a few opportunities to meet the Maytag in competition where machines were in homes. That was the method of selling during my period. They would send them out and let the people try them, and I have been in cellars where they had six or seven washing machines
821 standing in a row ready to try them all, and I have found that the Maytag would wash a good deal more quickly than the types that I was handling, and would wash more efficiently. And that was the concensus of opinion, it wasn't merely my opinion. That was felt generally.

So far as my actual experience is concerned, there is no actual comparison between the two in the principle involved.

Conrad Dietz was not connected with the John Dietz Company. He was the head of the Boss Company. Before he went with them his
822 son Lou was the head of the organization. The drawing of the Conrad Dietz Patent, No. 824,529, fairly represents the type of rub board made by the Boss, Dietz, Princess and others.

The drawing is offered in evidence as Plaintiff's Exhibit 34 (Tr. Ex. 46).

The drawing, Plaintiff's Exhibit 35 (Tr. Ex. 47) shows the rub board. That structure of the drawing is practically the same as the rub board used by Boss, Dietz, Princess and others, outside of the difference in the perforations. We had holes in the Dietz drilled in the dasher, and we had a little center block that these ribs radiated from. Outside of that it looks to me

to be the same thing. I think we had two more ribs in it than they had.

Drawing offered in evidence as Plaintiff's Exhibit 35 (Tr. Ex. 47).

The cut marked A on Plaintiff's Exhibit 19 (Tr. Ex. 32) shows a rub board type agitator. The principle of operation is undoubtedly the same as that of the Dietz, Boss, Princess, and so far as the agitator is concerned it appears from the illustration that the ribs might be 824 heavier and they haven't the same number of ribs. There are only six ribs or this and I think we had about ten on the Princess and on the Boss and Dietz. I don't think that that would have any different effect on the washing. The depth of the ribs on the rub board dollies on the Dietz, Princess and Boss were seven-eighths of an inch. They were cut out of inch stock, dressed down to seven-eighths. Take the rub board with the ribs having a greater depth, for example, like Plaintiff's Exhibit 31 (Tr. Ex. 49), it would have very much the same effect as the 825 four-pin agitator. It would be a good deal harder on the clothes. They would get down to greater depth in throwing the clothes around and it would be more wearing on the clothes.

Cross Examination by Mr. Free:

I have not seen in operation a machine having an agitator or a board like Plaintiff's Exhibit 31 (Tr. Ex. 49).

My comparison of the deeper ribs would be with the four-pin agitator, while it hasn't ribs on it, it had four pins which were possibly an

inch deeper than the ribs here. A four-pin agitator was harder on clothes than the rub board was. That is the reason we put out the rub board.

Q5. You now have reference to the rub board with 7/8 inch cleats A. No, I am talking about a four-pin agitator in comparison to this. A four-pin agitator isn't a rub board at all. That is that peg dolly type that is made out of pos-
827 sibly an inch and a quarter stock, to begin with, and has four pins imbedded in this inch and a quarter plate, or whatever you want to call it. It grips the clothes and carries them around from side to side.

Q6. And that is called a dolly? A. That is called a dolly; and the flat circular rubbing affair is called the rub board.

Q7. The dolly then, to go over this again, is harder on the clothes than the rub board. A. Than the rub board.

I don't think the height of the cleat on the
828 rub board would have much effect on the degree of rubbing, but the longer cleat on the rub board would imbed itself in the surface wash and would probably create a little greater agitation of the wash in the upper strata on that account; but it would be more wearing on the clothes. The greatest amount of agitation is the clothes in those rub board type machines as well as in the pin type, and the agitators come down through the lid. The agitation is more through the clothes than it is in those that come up from the bottom. It is forcing the soapy water through the clothes that cleanses them. I would not say there was a cushion of

water between the agitator and the clothes. If you had a dry surface and were rubbing the clothes, naturally you would not hardly move even the top of the clothes, but with the water in there it makes it more or less flexible. By "cushion" I mean a certain flexibility in there between the agitator and the bottom of the tub, by allowing the movement of the clothes through the water. There would be very little movement of water, it is largely a movement 830
of the wash through the water. There might be some movement of the water through the clothes, but it would be very little in that type of washer. There would be greater movement of the clothes if the blades were deeper and there would be an added movement of the water in the tub. I think a disc like Plaintiff's Exhibit 31 (Tr. Ex. 49) would move more clothes and more water than the Dietz machine, with lower cleats and a rub board. However, Plaintiff's Exhibit 31 (Tr. Ex. 49), is 3 or 4 inches smaller than the rub board agitator that we used and 831
you would have much less surface than you were covering. The difference has to do with the radial length of the blades. Assuming that the Dietz blades were the same length as those on Plaintiff's Exhibit 31 (Tr. Ex. 49), you would get more action of the water and of the clothes with a Plaintiff's Exhibit 31 (Tr. Ex. 49) agitator, but it would be harder on the clothes. That is the reason we discontinued the pin type agitator and put in the rub board. Insofar as the general shape of the cleats and their height is concerned, the agitator, Plaintiff's Exhibit 31 (Tr. Ex. 49) fairly closely resembles

the agitator marked A on Plaintiff's Exhibit 19 (Tr. Ex. 32), A on Plaintiff's Exhibit 27 (Tr. Ex. 40) and A on Plaintiff's Exhibit 21 (Tr. Ex. 34). In the Dietz machines which we used for demonstration constructed with a glass pane in the side of the tub, you could not tell how the water traveled by looking through that pane, during the operation of the machine, but you could see the clothes travel. The clothes
833 traveled in a mass. It gripped the clothes in the upper strata and dragged them around more or less in a mass—agitated the clothes in the center strata through the intermingling with that of the upper. That was with an ordinary load of clothes. I couldn't tell how much the ordinary load that I just mentioned would weigh when dry. We usually gauged it by a certain number of shirts or a certain number of sheets. On our instruction cards, we told the people to put in so much water, we had the water line according to the corrugations in the
834 tub, which was possibly within three inches from the top of the tub, and we suggested not washing over four sheets, or from eight to ten shirts.

I said in my direct testimony, in discussing the peg dolly machine which was driven through a shaft extending from the bottom of the tub, that there would be less tendency to grip the clothes in that machine than with a machine not having that center stem. The one that had the protruding stem wouldn't be apt to grip the clothes as thoroughly as the agitator that had just the four pins. I figured that the Maytag would carry about the same amount of

s that any of these other types would, four or five double width sheets. I don't there would be much contact between the and sheets at all. I think that the action . Gyrafoam has a tendency to keep the s away from the blades. It throws the in various currents and keeps the clothes from the Gyrafoam or agitator, or what- ou want to call it. I don't think there is contact of that with the clothes at all. 836
re would probably be more contact if you more than four or five double sheets but 't believe it would add anything to the ng efficiency. In fact, I think it would it. If you overload the Maytag you re- he speed of the water flow through the s. You are harnessing. Even if you jam ytag machine as full of clothes as you I don't think there would be any rub- That agitator is not built to rub clothes. not on that principle. Of course, if you so full that you have practically got it 837
l, the chances are that you will find some on your clothes, if you are going to keep vater harnessed that it can't throw the through the clothes you are making a dry r out of it. I do not think that the May- achine is hard on clothes at all. I don't w it can be. It throws the water through gainst the wash, and I don't see how that ole would be hard on clothes. To be hard thes you have either got to have a rubbed e or you have got to have clothes that termingled and carried, or, in other words, lled, that create a tearing.

838 *Oscar George Beushausen—For Plaintiff—Cross.*

I am familiar to a great extent with the construction and operation of machines which are competitive of the Maytag present day machine. As to whether in my opinion such competitive machines with the oscillating underwater agitator type are harder on clothes than Maytag machines, as far as I am concerned, it would depend a little bit upon the general shape, type and vane of agitator that was used
839 in these competitive machines. I think all of these underwater agitator types are less severe on the clothes than the old type overhead agitators were. But I know positively from competition in sales competition that the agitation in that Maytag machine is largely through the force of the water and it practically forces the clothes away from the agitator. There are other types that have agitators that come up close onto the top of the machine and to a certain extent hug the clothes, or the clothes hug them, and I think you will find greater wear on
840 some of those. You can tell that by the amount of lint and stuff that you will find in your tub when you are through washing and draining some tubs that have a great degree of perforations in them. Well, I don't think the perforations do anything except suck the lint through there. They lose the biggest part of the agitation by the holes in the agitator allowing the water to pass through freely and breaking the force of the water current.

I think that machines with the agitator blades extending up higher toward the surface of the water would have less water action than the Maytag machine.

Oscar George Beushausen—For Plaintiff—Re-direct. 841

I think the corrugations on the sides of the Dietz machine would add to the washing action, but I think on the bottom of the tub there wouldn't be enough agitation of the wash down to the bottom of the tub to get any benefits from the corrugations at all. The clothes are carried largely in a mass and they are carried up against the sides, which sides act as an exaggerated washboard and rub them gently. The general outlines of the Haag machine, Defendant's Cross-Exhibit W are similar to the Haag machine being sold around here when I was selling Boss. I can't recall that I saw a copper Haag tub on a stand of this kind. I am sure they made a copper tub machine later on, eliminating this stand. I might be mistaken about that, but I think they did. I don't recall whether the copper tub was smooth inside or corrugated. We didn't have any trouble with the Dietz machine tearing the clothes on the tub corrugations. As a rule it was tearing them in the pin type agitator. The five-eighths turn on the agitator, if something was twisted in there and turned the other way, you would be apt to tear the clothes. But the corrugations wouldn't tear anything. 842 843

Re-direct Examination by Mr. Loftus:

I would say that the sketch marked Plaintiff's Exhibit 36 (Tr. Ex. 47-A) involves the same principle as the Maytag and is arranged in substantially the same way to accomplish substantially the same results. Referring to the machine shown in Plaintiff's Exhibit 29 (Tr. Ex.

844 *William W. Winger—For Plaintiff—Direct.*

42) that embodies the same principle, the same combination, the same arrangement of parts and is arranged in substantially the same way as the Maytag Gyrafoam machine.

The effect of increasing the ribs on the Dietz rub board about seven-eighths inches deep to say an inch and a half as shown on Plaintiff's Exhibit 31 (Tr. Ex. 49), would be that it would contact the surface wash to a greater depth, and naturally carry it around more in bulk and more forcibly.
845 I figured it would act more on the principle of the pin type agitator.

Mr. Loftus: I offer in evidence Plaintiff's Exhibit 36 (Tr. Ex. 47-A) as well as any other exhibits heretofore identified by the witnesses which have been overlooked.

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846 DEPOSITION OF WILLIAM W. WINGER, TAKEN IN BEHALF OF PLAINTIFF.

Direct Examination by Mr. Loftus:

My name is William W. Winger; age, 58; residence, R. R. #1, Mishawaka, St. Joseph County, Indiana.

As to my first connection with the manufacture and sale of washing machines, I started on the invention in the year 1910 and made a few in 1913. I was first connected with the Winger-Blume Company, located at Wolcott, Indiana. The business was later carried on in the name

of the King Washing Machine Company. I was connected with both companies. At first we had the peg type dolly. Then later we equipped the machine with whatever type of dolly the customer wanted. The rub board dolly was a round piece of wood like a disc and screwed on to the underside were cleats. Plaintiff's Exhibit 27 (Tr. Ex. 40) is one of our circulars and was distributed by the King Washing Machine Company. At that time I was a stockholder in and connected with the King Washing Machine Com- 848
pany. The peg type dolly shown on the circular, Plaintiff's Exhibit 27 (Tr. Ex. 40), was made by the King Washing Machine Company while I was with them. They built that type of machine from the time we started in 1913. We built the type marked A on the second page of Plaintiff's Exhibit 27 (Tr. Ex. 40). We made and sold that type of rub board dolly— In 1919, as near as I remember. The circular, Plaintiff's Exhibit 27 (Tr. Ex. 40) says: "Rub Board Dolly can be furnished on any style machine." In our business at that time it was sold, described and 849
represented as a rub board dolly. This peg dolly in operation grabbed the clothes and forced the clothes through the water, while the rub board dolly rubbed the clothes. Referring to the cut marked A on Plaintiff's Exhibit 27 (Tr. Ex. 40), the rub board dolly, the action was to rub the clothes as the dolly moved back and forth, and that is why we called it a rub board dolly. The peg type gave the most satisfaction. The rub board dolly didn't take very good. We sold between 50 and 100. The rub board didn't sell so well and did not get the results that the peg type did. I am not in any way connected with

any washing machine company at the present time and have not been since 1919. The rub board dolly marked A on Plaintiff's Exhibit 27 (Tr. Ex. 40) had ribs about one inch or one and one-quarter inch. The disc was about thirteen inches across. There was six ribs on the disc. The wooden disc had six cleats and Plaintiff's Exhibit 31 (Tr. Ex. 49) is one that we made, and they correspond with the disc and ribs on the rub board dolly that the King Wash-
851 ing Machine Company sold while I was with them. I remember giving that rub board dolly to Mr. Allen a few weeks ago. I had it since 1921 and it is one we actually made. It corresponds with substantial accuracy to the size of the ribs and size and shape of the disc we used. The size of the ribs is about one and one-fourth inch, or maybe a little more, and they are about five and one-half inches long, and the disc is about thirteen inches in diameter. Plaintiff's Exhibit 31 (Tr. Ex. 49) was made by the King Washing Machine Company in 1919, or prior
852 thereto. (Plaintiff's Exhibit 27 [Tr. Ex. 40] and the rub board dolly, Plaintiff's Exhibit 31 [Tr. Ex. 49] offered in evidence.) These exhibits correctly represent the rub board dolly actually used in the King machine and made by the King Washing Machine Company while I was a stockholder in and connected with the company. The rub board dollies were sold as part of the King machine in 1919 or prior thereto.

Cross Examination by Mr. Free:

The holes between each pair of cleats on the dolly, Plaintiff's Exhibit 31 (Tr. Ex. 49) are

there so the water can wash through I suppose.

XQ48. What is the purpose of allowing the water to wash through these holes? A. This lets the lid go down to let water on the clothes.

XQ49. This dolly floats on the water? A. Yes. It floats on the surface of the water and the weight of the dolly holds it there and it rubs the clothes. This dolly might push the water back and forth to a little extent, but it couldn't very well push it because it is right on the clothes. That is the reason we call it a rub board dolly. 854

XQ52. You have seen these in operation and you know that it rubs the clothes? A. Yes.

XQ53. You know that this rubs the clothes but you do not know whether the clothes force the water back and forth or not, do you? A. How the heck can I, when it does not move the clothes?

The water would probably move a little. We never figured that it moves the water back and forth. The King Company sold between fifty and one hundred machines like those marked A on Plaintiff's Exhibit 27 (Tr. Ex. 40). I got a 855 patent on a swinging wringer. I don't know what happened to it, I sold it, The Meadows Company took it over. I knew that a swinging wringer bearing my name is being licensed for manufacture. The Maytag Company and the A B C Company are part of the licensing group. I have received a royalty under my swinging wringer, but I do not know how much I will get. Will Rocke signs the checks. We have nothing to do with the Maytag people. There is no doubt in my mind but that the machine sold by the King Company, used a disc like Plaintiff's Exhibit 31 (Tr. Ex. 49), and we sold such machines in 1919.

I do not know what would happen to the water in the tub if there were no clothes in the tub. I never tried it. I suppose the water would move more or less.

I am not being paid to testify, and just have the trouble of coming in here. I have not been promised anything and nothing has been said about being paid. That is the reason I did not want to come in today.

857 Mr. Loftus: I ask that the exhibits referred to in those depositions be offered as Plaintiff's Exhibits 25 to 47-A.

* * * * *

In the adjoining room there are several physical exhibits that are referred to in these depositions. One is now marked in the deposition as *Plaintiff's Exhibit 5, Haag woodtub machine* with bottom drive; and there is a 5-A, Haag peg dolly; 5-B, Haag rub board; 5-C Haag rub board, and Plaintiff's Exhibit 6, Haag metal rub board, and with—we will have those now marked in this
858 case as Plaintiff's Exhibits 48, that is Exhibit 5 of the deposition is now offered as 48, Haag rub board machine.

(Marked Plaintiff's Exhibit No. 48; 5-A marked Exhibit No. 48-A; 5-B marked Exhibit No. 48-B; 5-C marked Exhibit No. 48-C; Exhibit 6 marked Plaintiff's Exhibit No. 48-D.)

Mr. Loftus: There is also offered, and identified in the depositions the King rub board and dolly. That is offered as Plaintiff's Exhibit 31 in the deposition, and I now offer it as Plaintiff's Exhibit No. 49.

(Marked Plaintiff's Exhibit No. 49.)

Mr. Edmonds: Do I understand, Mr. Loftus, you are also offering the cross-exhibits of the defendants in connection with these depositions, offered in connection with the depositions?

Mr. Loftus: I have not got your exhibits here. I have not offered them, no.

860

LUCIEN I. YEOMANS, called as a witness on behalf of the Plaintiff, being duly sworn, testified as follows:

Direct Examination by Mr. Loftus:

Q. What is your full name? A. Lucien I. Yeomans.

Q. Where do you reside, Mr. Yeomans? A. 7008 Sheridan Road, Chicago.

Q. In what business are you engaged? A. I am a consulting engineer.

861

Q. Located where? A. 205 W. Wacker Drive, Chicago.

Q. Please state briefly your experience which enables you to understand the construction and mode of operation of washing machines of the type involved in this controversy? A. I am a machinist by trade, and have had a good many years of experience in operating and manufacturing hydraulic equipment and installing laundry machinery and operating it, and since I have been in a consulting capacity, the last 25 years, I have served as a consultant for two washing machine companies, and at one time conducted quite an extensive research into the problem of

the design of wave motors, etc., and I have had, during the last several years, opportunity to test and operate a number of different washing machines, both modern and ancient in design.

Q. Are you familiar with the construction and operation of the various types of washing machines commercially used, say prior to 1920? A. Yes, I have seen types or examples of all the types of washing machines made in the last 50 years.

863 Q. And operated them? A. And operated most of them.

Q. State briefly what they were? A. Well, the first one that I ever saw and operated was called the Joker. That was bolted to the side.

The Court: Haven't we been all over most of that?

Mr. Loftus: I think so.

The Court: The machines that I have seen myself?

Mr. Loftus: I am just qualifying him to show his familiarity with this art.

864 The Court: Well, we will concede his qualifications.

Mr. Edmonds: I will concede his qualifications so far as testifying here is concerned. I can't object that he hasn't the right to testify.

The Court: All right.

Mr. Lane: He has to have knowledge of the things he is talking about under that qualification, hasn't he?

The Court: I think he has given enough for that purpose already.

Mr. Loftus: I will just ask this one question, and it may come to the point.

Q. What was the general plan of operation of all these old machines to which you referred, which were commercially used prior to 1920? A. Well, the vacuum cup type, hand operated and power operated; the peg dolly type, hand operated and power operated; the scrub board type, hand operated and power operated.

Q. How did they wash the clothes in those various types? A. Always by either dragging or scrubbing or distorting and swishing them through the water one way or another. 866

Q. Are you familiar with and do you understand the construction and operation of the Maytag Gyrafoam machine, such as illustrated by Plaintiff's Exhibits 9, 10 and 11, and the defendants' machines as illustrated by plaintiff's Exhibits 3 and 4? A. Yes, I am familiar with those.

Q. And are you familiar with and do you understand the construction of the machine illustrated in the Snyder patent in suit, and its operation? A. I do.

Q. Please briefly describe that construction 867 and operation to the Court, and in so doing point out the differences in operation in that machine and the advantages over the old prior machines. A. The Snyder patent pointed out the disadvantages of the prior art and the difference between what he undertook to make and the prior art. Then he said that he must have a tub and a gyrator, and that gyrator was constructed to be only operated in a certain way, and so operated that it would produce a certain described current. He said that those currents were hard to describe. He said so several times in his patent, but he did sufficiently describe the currents

so that anyone skilled in the art would know what kind of currents of water he desired to set up. He also did the best thing that he could, in the absence of any formula, and he could not have set up a formula unless it had been empirical. He did the best thing he could to specify the tub and the gyrator by offering a scale drawing of a construction that he knew was satisfactory, a tub and a gyrator proportionate to his scale drawings in the patent, that would
869 be operable and would embody the necessary relations that are in all modern washing machines of that type. He described the current as violent, the currents of water as violent; he described them as carrying the fabrics to be washed with them, the fabrics in suspension, and while in suspension the fabrics to be washed by water action alone. The specification is perfectly clear to me, and with no other information except his patent drawings I would be able to construct such a machine and then by trial to develop the variables that he has in mind when he says
870 "And so operated as to produce" the currents he described, and "so operated" involves variables of the velocity of the water stream, the volume of water circulated and the depth of water in the tub. Those are the principal variables that are related to operation, and they are essential, just as essential as the proportions of the gyrator and tub. When the tub and gyrator are so made and so operated as to secure these directional currents which he has so fully described in his patent, the result that will be obtained always will be exactly as shown in the exhibits this morning with that type of machine. And that specification is sufficiently clear so that

killed in the art could practice his teach-
not only could I do that, but the fact that
any others already have done it is a proof
e sufficiency of his specifications.
Please describe the operation of the ma-
described in the Snyder patent in suit, and
dvantages, if any, over the old prior struc-
? A. The operation of the machine is to
p currents of a washing fluid which are
ently directional and strong to carry the
s distributed around the tub through pre- 872
mined paths, up the outside, across to the
e and down, and then back to the outside
. The fabrics are in suspension at all times.
her they are up at the top or the bot-
f the tub, whether they are in the sluiceway
e gyrator, in one of the sluiceways between
lades of the gyrator, whether they are pass-
ver the top, whether they are crossing from
outside to the center at the surface, or
her they are ascending the wall of the tub
oing down to the centre, they are always
spension in a moving current. While they 873
arried in that suspension they are acted
by flexing and, as he says, cracking like
iplash and distorted and bending in all
tions and working the fabric to free the
particles of soil from the fabric while they
arried in suspension by this action of the
tional currents. Cross-currents are set up.
as described them variously. He has said
the main directional currents are in the
e of a helix wound around a ring, and he
that the cross-currents are violently in all
tions, violently circulating in all directions.
n't know how he could have described it

any better. But given his apparatus, his tub, the proportions of it, the proportions of his gyrator, anybody can vary the speed of it, vary the number of degrees through which it oscillates and vary the depth of water in the tub, and vary the load of clothes or fabrics that are put in the water to get the current that he describes.

Q. Now you mentioned directional currents. What is the function of the directional currents,
875 and of what importance are they? A. They are strong currents that carry the clothes in suspension throughout their travel. They also do some washing. Some of them are cross-currents. Naturally they are currents that converge toward the centre. They come up the outside of the tub and they pass radially across the top to the centre, consequently there is interference between currents, there are cross-currents, there are strong eddies in places, and all of them work the clothes back and forth while they are carried in suspension. They do the washing.

876 Q. In what way do these directional currents travel? A. The predominating directional currents travel outward at the bottom and upward along the walls of the tub, probably to a distance in of several inches, and then across the tub, and at that point the surface of the water is going downward, and from there, when they reach a descending current, then they assume a descending direction, why, it just makes a loop. There are spaces in the centre where it is a small loop, there are places at the extreme outside where it is a large loop, but it is a loop which is bounded by the tub and the sur-

face of the water and the centre post of the gyrator and the bottom of the tub and gyrator.

Q. Well, let us assume that you get the Maytag machine ready for operation, and you have put in the normal amount of water and normal load of clothes and started it up, and what happens to the clothes? A. The clothes are carried around and around, up the outside, down the centre, across the top, across the bottom, and are distributed at the same time by this helical tendency of the currents, as he describes 878
it, a helix wound around a ring; are distributed around the tub, back and forth, and the cross-currents, of course, assist in the distribution, there are no matted portions of the load, everything is free in the water, and at any time when it is not so operated it is not operated in accordance with this patent.

Q. How about the roll-over action? A. The roll-over effect is the effect of this predominating current, which is the most noticeable thing in the operation, carrying the clothes with it; the clothes do not travel quite as fast as the 879
current, they can't, but the current picks up the fabric and does its best to carry it at its speed in the predominating direction.

Q. Well, what kind of a roll-over is this, slow or fast, and why is it important, and what does it do? A. Well, it keeps the clothes spread out, it keeps presenting them to cross-currents and does not let them go, the current is necessary to keep them in suspension in the first place, and the roll-over is the consequence of the current that they are in. That current has to roll them over if it carries them with it, because it has a roll-over direction of a water current.

Q. In the Snyder patent in suit, in looking at the drawings, particularly Fig. 1, and in referring to the claims, is there illustrated and is there called for a substantial space between the outer periphery of the impeller and the interior surface of the tub? A. Yes, it does.

Q. Will you tell us about the function of that, why it is important and necessary, and so on? A. That is of great importance in the machine. The relation between that impeller and the tub
881 makes the machine operative or inoperative, if not sufficient or if too large. The water is impelled by the blades of the gyrator. It derives its motion from the operation of those blades. The direction and the stream set up in that way is composed of two components; one is a force which is purely centrifugal around an axis in a radial direction; the other is a force which is acting in a tangential direction to the blades of the gyrator, due to the velocity. The intensity of those two forces varies directly as the number of oscillations of the impeller or gyrator for
882 the tangential effect, and as the square of the number of oscillations for the radial affecting the centrifugal force. Consequently the combination of those two forces sets up a stream of water which has some sort of a spiral. It would be impossible for anyone to plot it, I believe, I believe what it would be impossible to make any calculations that would definitely determine, as Snyder has determined. I don't believe he did it by calculation; I don't believe he could do it.

The Court: Well, if he did not do it, what is the use of doing it?

The Witness: It can only be done experimentally.

The Court: If you have done it, and if you could determine it, what particular use would it be in such a case as this? If it were necessary for an engineer really to determine exactly the direction the water should take, there is no particular reason why he cannot do it, is there?

The Witness: I think it can only be done empirically. It has not yet been done 884
otherwise in the design of centrifugal pumps, and that is over 250 years old.

The Court: All I am wondering is whether this case is not being made a little bit too abstruse.

The Witness: Your Honor, the energy in that water as it leaves the blade is kinetic energy, energy in motion, it is motion. If the wall of the tub came right up close to the impeller, there would not be one particle of indication of the performance in this Maytag washing ma- 885
chine in Snyder's patent, not a word, if the wall of the tub came right up to it it would be entirely defeated.

Now then, by getting this annular space, a sufficient annular space there, in centrifugal pump design called the free vortex space, and as long as that violently agitated small radius sweeps the water along, any motion there is straightened out, gradually slowed down and turned into potential energy, pressure energy, and a strong current, and that is the purpose

of that annulus between the gyrator and the tub wall.

Q. What effect does that have, practically, as to the utilization of the energy put into the tub or the machine? A. I think that probably in that machine that about half of that kinetic energy is recovered in the potential energy. That is, the figures given by designers of centrifugal pumps are between 37 and 44 per cent.; this is
887 not confined, it is open, and my guess is that it is probably a half of the kinetic energy that would otherwise have no useful effect for that purpose, in that machine, is turned into potential energy and strong directional currents that serve to sustain these fabrics and carry them in suspension, and the velocity has a great deal to do with the carrying capacity of the current. There is a tremendous difference between the carrying capacity of two currents of only slight difference in velocity.

Q. I think perhaps my question was not clear.
888 What I wanted to know is what is the practical effect in washing clothes of providing that space? A. It provides the strong current. There would be nothing but just wave motion and agitation, a hydrodynamic agitation there, no movement at all, if you do not have that annulus and the tub wall came right up to the gyrator and you should put clothes in there, instead of being suspended they would go right down on the gyrator.

Q. Can you actually demonstrate that in the machines of the Maytag? A. Certainly.

Q. Or in the defendant's machine? A. Certainly.

Mr. Loftus: I think that that might be well worth seeing.

The Court: I am wondering whether it is worth seeing. I have a very vivid picture of what the Maytag machine does and how it operates, not only from the demonstration this morning but also from seeing it operated in a number of washrooms and kitchens, so that I do not think anything particularly is to be gained by examining it further in that respect. I don't believe it will be questioned here for one minute that it operates much as he has already stated.

Mr. Loftus: The point was that to demonstrate, not by testimony, to show by demonstration the absolute necessity of this substantial space in between the impeller and the inside of the tub which each of the claims calls for. The other side more or less ridiculed that, and it can be demonstrated in a few minutes to show that it is absolutely essential to have it.

The Court: I don't question it for a minute, and I don't think the other side questions it for a minute.

Mr. Loftus: But it is quite important to washing operations.

The Court: I should think that would be so, and I don't know anything about hydrodynamics, but certainly if you put one of these paddle wheels in a pipe, such as a turbine, you would not wash clothes, would you?

Mr. Loftus: No.

The Court: And they probably would be mangled. Therefore you have to have a sufficient amount of space and a receptacle as might be shaped in such a way that it was rather big to actually turn. I should think that that was apparent on its face, but whether that constitutes invention in a washing machine I don't know. I don't know that it is necessary for me to decide that.

893

Q. How does the construction and operation of the machines now charged to infringe, as illustrated by Plaintiff's Exhibits 3 and 4, compare with the construction and operation of the Snyder machine? A. Any differences in the construction are very narrow and trivial. The operation is practically the same. I see no difference in the result.

Q. With respect to the proportionate parts and arrangements and corelation of the impeller and tub and speed on the impeller, how do they compare? A. They are practically identical.

894

Q. You have actually operated these machines, each of them? A. I have operated all of them.

Q. On more than one occasion? A. A good many times.

Q. And you are thoroughly familiar with their construction and operation? A. I am.

Q. Looking at the drawings in this case marked Plaintiff's Exhibits 3-A and 4-A, tell us how they compare with the construction of the Easy machine which you have operated and designated

Plaintiff's Exhibit 3, and the Hurley machine which you have operated, designated and offered in evidence as Plaintiff's Exhibit 4. A. I would say that those were correct delineations of those machines.

Q. What is the speed of oscillation of the first, the Easy machine, illustrated in Plaintiff's Exhibit 3-A?

Mr. Edmonds: I wish to object now. We haven't yet gotten to—the speed is not 896
concerned with what we are called on to consider here. There is nothing in the patent in suit about speed, there is nothing in the claims in suit about speed. The claim is limited to structure.

Mr. Lane: I thought there was a very great deal in their claims about the velocity.

The Court: I will let him testify to that if he knows.

A. I timed it as well as I could. Sometimes I got a trifle over 59 or a trifle under 60, be- 897
tween 59 and 60 on the model that is in the other room there.

Q. You are speaking now of the identical machine, marked Plaintiff's Exhibit 3? A. I am.

Q. And you timed that when, for the last time, that you got 60 on— A. I timed it Saturday afternoon.

Q. Now with respect to the Hurley machine, the identical machine I am talking about now that is in the adjoining courtroom and marked Plaintiff's Exhibit 4; what is the speed of oscillation of that machine? A. I time that between 54 and 55.

Q. And how about the Maytag machines in the adjoining room, Plaintiff's Exhibits 9, 10 and 11? A. I have not timed those here. I timed them about a week ago at 54, but I have not timed them since. I have not timed them Saturday or today.

Q. What is the round tub machine? A. The round tub machine is 54.

Mr. Loftus: I offer in evidence the
899 drawings just referred to by the witness, as Plaintiff's Exhibits 3-A and 4-A.

(Marked Plaintiff's Exhibits 3-A and 4-A, in evidence.)

Q. I call your attention to three drawings, marked for identification Plaintiff's Exhibits 9-A, 10-A and 11-A, and ask you to look at those and state how the construction there generally compares with the three Maytag machines in the adjoining room marked Plaintiff's Exhibits 9, 10 and 11?

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(Marked Plaintiff's Exhibits 9-A, 10-A and 11-A in evidence.)

Mr. Edmonds: These are just being put in to serve as illustrations?

Mr. Loftus: That is all.

Mr. Edmonds: Of the same machines.

The Court: I so understand it.

Mr. Edmonds: These seem to cover later devices which were the subject of later inventions, these patents that I asked the other witness about.

Mr. Lane: Oh, no, they are just the same, they state the same general princi-

ple. The same thing is in the other case, identically, by the same pictures.

Mr. Edmonds: Well, counsel contradicts me, but the fact is that all these drawings show a set of machines which the prior witness said were the subject of a later patent and were not involved or embodied in the machines on the patent in suit.

Mr. Lane: He did not say that. It is in the patent in suit. 902

The Court: Yes, these correctly represent the machines in the other room.

Q. Well, which does 9-A represent? Can you briefly state that? A. 9-A represents the old square tub machine without the center post, and 10-A represents a square cut machine with a center post.

Q. And what exhibit number does that carry in the other room? A. 9-A is the one without the center post, with the low center gyrator, and 10-A is the square tub with the high center 903 post. There is a difference in the drive, too, I presume, but not much. The 11-A represents the round tub machine that is out there, and there is a difference in that drive. It is a high center post, too.

Q. Are you familiar with the Davis patent No. 1,240,826? A. Yes.

Q. Issued September 25, 1917, and the construction and operation of the machine therein shown? A. I am.

Q. Have you operated the Davis machine? A. Yes.

Q. In the Brooklyn case there was a Davis—

904 *Lucien I. Yeomans—For Plaintiff—Direct.*

1900 Davis machine offered in evidence in that case by the defendant, now designated 2-A. Do you remember that machine? A. Was that that wrecked machine over there?

Q. Yes. A. Yes, I remember that.

Q. And which machine was brought into the court in a collapsed condition? A. Yes, sir.

Q. And is that the one shown in this photograph I now hand you? A. I think so.

905 Mr. Loftus: I ask that this photograph be marked for identification.

Q. Which one do you refer to on the chart? A. This one right here in the center and on this end.

Q. Two views on the left hand side of the chart? A. I mean the one that is not marked Dietz.

Q. What is the Dietz machine? A. It is a somewhat similar rub board machine.

906 Mr. Loftus: I ask that this chart be marked for identification.

(Marked Plaintiff's Exhibit 50 for identification.)

Q. Have you operated the 1900 Davis machine of precisely similar construction and operation as the Davis machine Defendant's Exhibit 2-A which they had in the Brooklyn case? A. I have.

Q. In that Davis patent it is stated,

> "One of the objects of the invention is to provide an agitator having a novel arrangement of ribs or vanes on the lower or active face thereof and which operates to direct the water outwardly by

centrifugal force, thereby setting up a circulation downwardly within the tub adjacent the wall thereof, and thence upwardly through the fabrics in the tub and to the center of the space below the agitator.

"A further object is to provide an agitator designed to float upon the water contained within the tub and the ribs on which will not only serve to set up a circulation of water as stated, but will also 908 rub lightly upon the fabrics without danger of injuring them."

What is, as a matter of fact, the operation of that machine? A. If it is operated with water alone and no fabric in the tub, the impeller or rub board will go down to a point where there is a balance between the head of water above the rub board and the water below. If it is operated with clothes in it, in the first oscillation or two it undoubtedly operates somewhat as a centrifugal device. After that the clothes are 909 over the cleats or rubbers on the rub board, and the clothes ride with it and swish around with it, and they slip over and are rubbed some by the lower board, but in general they ride with it and are washed just the same as they are in the peg dolly machine. Then as you continue to operate it they throw water in little, minute, wave eddy currents to the edge, that water rises slightly and the rub board goes down and there is a continuous process of that until the rub board reaches that point where it is unable to go any further because of the clothes that are under it.

Q. And the clothes are rubbed between what? A. The clothes are rubbed between the corrugated tub bottom and the board, the rub board, and when it gets clear down they are rubbed.

Q. And has that been the regular operation every time you operated it? A. Yes, sir. I operated it in Chicago and it did that same thing, and I have operated it here and it has done the same thing. Every time I have operated it it has always done it.

911 Q. Have you here a machine with which you can demonstrate that to the Court, that operation? A. Yes, there is a machine in there that will demonstrate it.

Mr. Loftus: I think that might be of some help.

The Court: I think we saw that this morning, did we not?

Mr. Loftus: You did not see the regular motion of it, it merely started and then was shut off, and the regular operation would have shown you that. I have

912 seen it, personally, probably 50 times. It crawls right down in the regular operation, and you don't get anything until you get started doing this and the rubbing on top of the clothes and the corrugated ribs of the tub riding on the outside.

Q. I might ask you now, about how long in the regular operation is it before the rub board is down to its lower limit of movement? A. Well, the range ordinarily is from about four to eight minutes; occasionally it takes a little over eight minutes, and sometimes I have seen

it go down in three minutes to the extreme bottom.

Q. Well, in that machine in its regular operation how are the clothes cleansed? A. They are cleansed by rubbing the top as far as the rub board can effect it, and they would have to be turned over to get those that are in the idle space, out of reach of the rubber board cleats, and then there are some clothes always that crawl up on the top of the rub board and do not get washed at all. 914

Q. They rest on the rub board? A. Unless you push them back.

Q. You mean rest on the top of the rub board? A. Yes, a half dozen or dozen pieces, sometimes; usually three or four are up there.

Q. And you have to take the rub board off? A. Yes.

Q. And so far as they are washed, so far as it does wash clothes, does it operate on the clothes as a mass? A. Yes, they are in a mass, it only operates on the top of them, it does not do anything to the part in the center. You see that 915 it scrubs the top of them and that it rubs them on the corrugated bottom of the tub, and in fact I think that the large cleats on the rub board engage the clothes more vigorously than the small corrugations on the bottom of the tub, and it is distinctly noticeable when they are down there and rubbing the crunching of which is a sound almost the same as you would get off the hand wash board.

Q. How does the operation of that machine compare with the operation and arrangement of parts of the Snyder machine disclosed in the patent in suit? A. It has no relation to it at all.

Q. Why? A. Because in the first place the clothes are not—this Davis patent is full of mis-statements. The clothes are not washed by circulating currents of water up through them. There are no such currents of water going up through them. They are rubbed, and nothing else, and pressed down and rubbed, and the only thing different there anyway is where the rub board gets down below the surface and water flows up around the edges of it and it gets to
917 several inches depth above it. There could not be any circulation of water through the clothes, because they are matted right up there on that rub board, and it effectually ends the usefulness of the cleats so far as vanes of a centrifugal pump to throw water are concerned. The cleats may serve some purpose as rubbers, and they may serve some purpose as the engaging fingers of a dolly, but they serve no purpose as a water circulator when the clothes are matted on them.

Q. A moment ago I quoted from the Davis
918 patent; you still remember the quotation. From your experience in the operation of the Davis machine, is the thing shown in the Davis patent operated at all to do what the quotation said? A. As described in the Davis patent?

Q. Yes. A. Absolutely not.

The Court: I think we better stop, if it is a convenient point, at this time until tomorrow morning at half-past ten.

(Adjourned to Tuesday, May 18, 1937, at 10:30 a. m.)

New York, May 18, 1937;
10:30 a. m.

(Trial resumed.)

LUCIEN I. YEOMANS, resumed the stand.

Direct Examination continued by Mr. Loftus:

Q. Yesterday you testified concerning the 1900 Form 1 or Davis machine, which is identified in this case as Plaintiff's Exhibit 16. What are the differences in construction between that machine and the Snyder machine that causes this radical difference in operation and results which you have described? 920

Mr. Edmonds: Does the question relate to this exhibit machine that is here?

Mr. Lane: Read the question.

(Question read by the stenographer.)

Mr. Edmonds: I would like to have it stated whether or not the question is directed to this exhibit machine that is here. 921

Mr. Lane: The exhibit is numbered in the question, your Honor.

The Court: 16 was the machine, was it not?

Mr. Loftus: Yes, your Honor.

The Court: Or was it the diagram of the machine?

Mr. Loftus: No; the machine is marked Exhibit 16.

Mr. Edmonds: This particular exhibit, in other words.

A. The Davis machine, Exhibit 16, has a tub, wooden tub, which has corrugations on the bottom and on the side; it has a rub board which is attached to the end of a vertical, square-driving spindle which is driven from a mechanism attached to the top of the tub cover. The rub-board on the end of the spindle is free to travel about 7½ inches vertically, so that the blades or cleats on the rub board approach the bottom and practically contact it. The rub board itself
923 rather closely fits the tub. There is a space of approximately 2 inches, average, between the periphery of the rub board and the tub sides. The oscillation is caused by a crank motion which gives it a harmonic motion in operation.

The Maytag machine is constructed with a smooth tub. It has a considerable distance between the gyrator and the tub sides. The gyrator is in a fixed location at the bottom of the tub and is driven from underneath the tub, also by a crank motion.

The blades of the rub board of the Davis
924 machine are about 11/16ths of an inch square. They do not project any substantial distance from the rub board.

The Maytag impeller is very much smaller in diameter, with this large distance between it and the tub side, and the blades on it are directed upwardly and toward the load and are a very substantial area. There is no proturberance anywhere in the Davis machine blades on the impeller, while in the Davis machine there are the blades on the rub board and the corrugations on both sides and the bottom of the tub. The Davis machine is operated slowly, and the May-

tag machine, or Snyder machine, is operated somewhat faster.

I do not recall whether the question said anything about operation, or whether it was directed entirely to construction. May I have it again?

Mr. Loftus: Both.

Q. (Read.) A. The reason for the cause of the difference in operation is found in this location of the gyrator of the Snyder machine at 926
the bottom and the substantial area of the blades and their ability to circulate large quantities of water, and the head of water over them has a material influence on the performance which makes it so different.

The blades of the Davis machine are depending from the rub board, and the clothes are carried up against them and baffle any action that they might have other than to carry the clothes with them. The close spacing between the periphery of the rub board and the tub side of the Davis machine prevents the rectifying of the 927
disorderly currents that are caused by its oscillation, and there is a wave motion created which causes the water to pile up above the rub board and carry the rub board down.

In the Maytag machine of the Snyder patent the head of water above the impeller and the distance between the impeller and the tub provides opportunity for those disorderly currents to rectify themselves into strong directional currents which carry the clothes in suspension. The clothes are not carried in suspension in the Davis machine for that reason, and they are entirely carried down to the bottom and pressed

down by the rub board, with very obvious scrubbing against the side of the tub and bottom of the tub.

Q. In your last answer you spoke about the Maytag machine circulating large quantities of water. Can you explain that a little more fully? A. The impeller blades on the Maytag machine are of very substantial area, and they are operated as the patentee says so as to create the currents of water which are of considerable strength
929 and violence. I have made calculations of the amount of water circulated in the Maytag machine, and approximately a ton of water a minute is circulated by the impeller. The velocity of the stream is of the greatest importance. It is more than any one single thing, the influence that suspends the clothes in the current described by Snyder. The carrying capacity of water varies tremendously with the least change in velocity. In fact, a stream of water in motion has a carrying capacity for suspended solids in it such that if its velocity be increased 10 times its carry-
930 ing capacity is increased a million times, and therefore the slightest increase or decrease in the velocity of the stream of water in the Snyder machine has a tremendous influence on the carrying capacity of that stream to carry clothes in suspension while they are being washed.

Q. In the Davis machine when that is in operation, that is the 1900 form 1, does it produce any directional transporting currents capable of transporting or rolling the fabrics in suspension? A. It does not. At first it produces a wave agitation at the periphery of the rub board, and as soon as it has contacted the clothes it follows them down and engages them, and from then on

the only water action in that tub is a swirling of water caused not by the cleats on the rub board but by the clothes which are engaged by the cleats.

Q. Is such a directional, transporting current possible in that type of machine, the rub board type of machine? A. It is not.

Q. What are the advantages of the operation of the Snyder construction shown and described in this patent, as compared with all tubs that preceded it, briefly? A. The Snyder construc- 932
tion is such that no moving parts of the machine engage the clothes and tear them or distort them by mechanical action, or pound them, or otherwise damage the fabrics which are being washed. The Snyder construction permits a strong circulating current of water to carry the clothes at all times in suspension, and while they are in that suspension they are bent and doubled and whipped and twisted and untwisted and are swirled through the water. Cross-currents act on them and cause those motions of the fabric, the bending and flexing that is necessary to free the 933
dirt from the fabric.

Q. How about the washing area of the Snyder machine or Maytag Gyrafoam machine as compared with the prior tubs, the effective washing area? I have reference to the live washing area? A. In the Snyder machine clothes are washed in all parts of the tubs. They are distributed throughout the tub and they are in suspension. They are not tangled. They are freely contacted by water streams and each piece of fabric is substantially a separate unit in the tub, whereas in the Davis machine, the rub board machine, and machines of that type, the clothes are massed

and either the top or bottom or periphery of the mass is acted upon by rubbing and scrubbing and bending in the case of vacuum cup machine, and in that way the dirt is freed from the fabric by its abuse in that way. In such a machine it was usual to load the machine pretty heavily, and that is evidenced by the 7½ inches travel of the rub board on this Davis machine. Otherwise there would be no action for much travel. The mass of clothes, 5 inches thick, for instance,
935 in the tub would obviously only possibly be acted upon, upon the lower and upper areas of the mass. The center of the mass would receive no action of the rub board or the corrugations on the tub, unless and until the operator had rearranged the mass and exposed fresh surfaces.

Q. How about in the prior machines as to the dead washing areas? A. There is no space in the prior machine that does washing except in the contact with the rub board or the tub side or the bottom, and any other part of the machine is dead space. In the Davis machine with
936 a load of 3 or 4 pounds of clothes the rub board follows the clothes way down, and there is 4 or 5 inches of water over the rub board, and that water is absolutely useless as far as washing is concerned. It is not in any way in contact with the clothes, except such clothes as crawl around the edge of the rub board and crawl up on top of it and pile up there and accumulate there. In some cases they are torn by the parts of the impeller, where part of the fabric is held by the massing underneath the rub board and part of it is stretched by the action of the rub board.

Q. With reference to the Snyder machine, what have you to say as to the utilization in the washing operation after the machine is in operation with the full effective power put into the machine, or energy, in doing the washing? A. The net energy put into the Snyder machine is all utilized in washing clothes. The circulation of water represents the tonnage of water circulated against a given head in the machine, represents the net energy put into the water.

Q. Have you operated the Snyder gyrator in 938
a tub having the same relative proportions as are present in the rub board type of the Davis machine? A. Yes, I have.

Q. What occurred in such operation? A. There is no such circulation or suspension of clothes as is deseribed in the Snyder patent. The action is the causation of wave motion around the impeller and violent wave-like agitation, which has no controlled currents involved at all.

Q. Is that a matter of actual determination? A. Yes, I have determined that.

Q. Can you actually demonstrate that oper- 939
ation at this time? A. Yes, sir.

Q. When you attempt to so operate it what happened to the clothes which you put in? A. The clothes are carried down by their weight onto the impeller and mass on the impeller, and are carried by it and the machine becomes nothing at all but an inverted dolly type machine with the clothes swished around and carried as a mass by the dolly.

Q. And is that true whether you have only one small garment or article in the tub? A. Yes, one small piece of fabric will go right down on the impeller and stay there.

Q. And why is that true, as determined by you? A. Because there is nothing circulatory to the current at all to carry it away, to carry it in suspension. It cannot be suspended in that way. It is strictly a wave motion, just up and down wave motion.

Q. Does that determination actually demonstrate that it is absolutely necessary to have the impeller spaced a substantial distance from the wall of the tub? A. Yes. In order to carry out
941 the Maytag disclosures the impeller must be spaced a sufficient distance to allow the creation of those currents and the carrying of the clothes in suspension, and that distance must not be too great.

Mr. Loftus: We have the machine in the other room, if your Honor would be interested.

The Court: I don't think I want to see it. I think I have seen that machine in operation.

942 Mr. Loftus: It goes to another point, I might explain.

The Court: I understand.

Q. In the machine made under the Snyder patent, does the circular movement of the water and the clothes bring the clothes and different portions of them rapidly in contact with the impeller blades, and do those impeller blades scrub, knead and flex the clothes to deform the threads and loosen the dirt from the fabrics? A. The clothes are never brought in substantial contact with the impeller blades, and they are very seldom touched in any way, even lightly, by them.

There is no rubbing or scrubbing by the impeller blades of the clothes in the Maytag operation, in the Snyder operation.

Q. And on what do you base that statement? A. On tests that I have made of that, and also my knowledge of how those currents would operate and how difficult it is to—

Q. Actual determination? A. Actual determination, and my knowledge of how difficult it is to touch anything under water when that thing with which you are trying to move it is in rapid 944 motion.

Q. In the machine of the Doughty & Davis patent, No. 1,496,305, was there the same circular direction of the water and the fabrics as set forth in the Snyder patent? A. Absolutely not.

Q. Why? A. Because in that machine the impeller is a scrub board which is placed at the bottom of the tub. There is a very small distance between the periphery of the impeller and the tub, less than an inch; the rotation or the oscillation of the scrub board was not rapid, and had 945 it been it would have made no difference in the action of the water. Operated with nothing but water in that machine, there is just a rippled surface, a wave motion, no circulation of any such description as the circulation or streams in the Maytag machine.

Q. Are you familiar with the construction and operation of the machine disclosed and described in the Doughty & Davis patent No. 1,496,305? A. Yes, I am.

Q. Compare the construction and operation of that machine with the Snyder machine of the patent in suit. A. The tub has a—I would like

to ask if that is the commercial machine that is to be compared, or the patent?

Q. Yes, the Form 4 1900 machine. A. The commercial machine has a scrub board which very closely fits the tub, and the diameter of the disc portion of the rub board is 22⅞ inches in a 24½ inch tub, which gives a clearance of less than an inch. This metal rub board had a ½ inch down-turned flange at the edge, and it was riveted to a driving spider at the center
947 of the disc, and that in turn was driven by a splined spindle. In place in the tub, the surface of the disc upon which the blades of this scrub board are established, stands one inch above the bottom of the tub. On the face of the disc there are located six rubbers which are spaced 45 degrees apart, so that one-quarter of the disc is blank, the spacing being for eight equi-distant rubbers with two omitted. Each of those rubbers are located ½ inch from the disc edge, and they are square-edged and beveled at the outer ends, and in that way somewhat dif-
948 ferent from the showing in the patent. The rubbers are 8⅝ inches long by ⅞ inch wide and ¾ inch high, and they are beveled back ½ inch and down to 5/16ths inch from the disc. The driving mechanism oscillated the disc through an arc of 186 degrees at 42 cycles per minute, and with 20 gallons of water in the tub, which filled it to a depth of 9 inches above the disc, I tested this machine and also observed its operation with no clothes in the water.

Without any clothes there was a rippled disturbance of the surface that was not rapid or strong enough to indicate any stream action from each impeller or cleat, and when clothes

were put in it they were badly tangled when removed. The machine made the best showing of all with a rather light load. The clothes in this machine sloshed back and forth in a mass, and while the impeller oscillated 42 oscillations a minute, the clothes had a different time of travel. They surged at the rate of 60 a minute, and I presume that the thought that I had that that was so is correct. It seemed to me that the slip of the cleats on the rub board on the clothes at the moment of reversal gave them a gain, so 950
that as each successive reversal there was a gain which gave the 60 surges instead of 42 that might have been expected if the clothes were carried entirely and always without slipping or rubbing by the rub board. This machine had a tendency for the weight of the clothes to crawl across the disc toward the side opposite the missing impellers, that is the blank side did not restrain them as did the side that was fully equipped with impellers.

Q. I think that is not quite clear. Where did you say the clothes were collected? A. The 951
clothes travel over to the side which has the symmetrically arranged rubbers and away from that side which is blank, or from which the rubbers are omitted. There were eight rubbers altogether on the disc—a place for eight, a spacing for eight, but only six there, two were left off. That caused a swishing of the clothes back and forth, and the rub board carried them over to the side that had the impellers on it and away from the blank space.

The only action of the tub at all is wave action and the rubbing and scrubbing of the clothes by the impeller cleats or the rub board cleats

on the bottom of the load, the weight of the clothes holding them down on the impeller.

Q. Did that machine in operation set up any directional positive controlled currents for transporting the fabrics and rolling them over and distributing them around the tub? A. Not at all. The only movement of them at all, of the rub board at all, is due to the throwing of the clothes themselves up on the rub board cleats, not by any current of water.

953 Q. You have seen and examined, have you not, the washing machine in this case referred to as the Haag rub board machine, and identified as Plaintiff's Exhibit 48? A. Yes, I have seen that.

Q. In the depositions that were offered yesterday? A. Yes.

Q. Compare the construction and operation of the Davis machine, Form 1, such as Plaintiff's Exhibit 16, with the construction and operation of the Haag rub board machine Plaintiff's Exhibit 48.

954 Mr. Loftus: I might say, before you start answering the question, the Haag rub board has already been identified and talked about in the depositions that were introduced yesterday by the witness Ryan.

The Court: I am wondering if it is necessary for him to go all through this prior art and compare every one of these machines with the patent in suit.

Mr. Loftus: I did not intend to go that far. There just was one feature that I wanted to bring out.

The Witness: It is a similar machine.

Mr. Edmonds: What is Exhibit 48; is it a machine out there in this room?

Mr. Lane: That is the machine next to the one you were looking at this morning, Mr. Edmonds, standing right beside it there.

The Witness: It is a similar type of machine, constructed absolutely in the same way, driven a little differently. The rub boards are free on a splined spindle, whereas the rub board of the Davis ma- 956
chine is fast on a square spindle, but the action of the machines, at least some of them which I have seen operated elsewhere, is the same as the action of the Davis machine. I see no reason to believe that that exhibit—the description I have given of the action of the Davis machine would not apply to the Haag machine in that exhibit.

Q. Are you familiar with the construction disclosed in the Jardine Patent No. 18,202 of 957
1891, the British patent? A. Yes, I am.

Q. Compare the construction and operation of the Jardine machine of this patent with the Snyder machine of the patent in suit? A. The Jardine machine has very large and prominent ribs on the inside of the tub, which extend down a considerable distance but not entirely to the bottom of the tub. The impeller in that machine has shaped ribs, which are heavy and mounted upon a central shaft that is adapted to either rotate or oscillate them, and the patent itself is not directed to any of those features but is to a

seal for the bottom of the dolly, which prevents clothes from being dragged under and torn in the bearings if that machine is oscillated either constantly or—is either oscillated or rotated it acts as a dolly and carries the clothes against the ribs, rubs them against the ribs, and if there are sufficient clothes in the tub it builds up a mass so that it also squeezes them against the ribs, between the heavy ribs of the tub and the heavy ribs of the dolly or agitator. The
959 dolly is rather clumsily shown, a rather clumsily shown device, with very wide, thick, rounded ribs, so as to damage the clothes the least amount possible in the rubbing and pounding that they get between the ribs of the dolly and the ribs of the tub. There is no circulation of water in that machine, directional currents that carry clothes in suspension. The agitation of the water in there is a true wave agitation, just a disorderly agitation, and no directional currents at all.

In the Maytag machine, on the contrary, as I
960 have said before, there are entirely directional currents that carry the clothes in suspension but not drag them or rub them or pound them by the action of any dolly, or against any protuberances on the tub.

Q. Is there any driving mechanism whatever shown in the Jardine patent? A. No, the patent shows nothing of the kind. It is directed to the seal, as I said.

Q. What is the rotatable member shown in the tub called in the Jardine patent? A. It is called a dolly.

Q. Is there a vigorous agitation or circulation of water by the member called the dolly, in the

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Jardine patent? A. When there are clothes in the tub there is no agitation by the dolly, because the dolly is carrying the clothes. The water is given a disorderly agitation by the mass of clothes which are swirled around by the dolly.

Q. In the Jardine machine does any rubbing occur other than that between the clothes and the dolly? A. Yes, I think a great deal of rubbing occurs between the clothes and the very prominent ribs on the inside of the tub.

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Mr. Loftus: I think that is all of the direct your Honor.

Mr. Edmonds: No cross examination.

WINTON G. WILKS, called as a witness on behalf of Plaintiff:

Direct Examination:

963

My name is Winton G. Wilks; residence, Philadelphia. I am assistant branch manager of the Maytag Company and have been about two and one-half years. The Philadelphia branch covers fourteen states in the east, comprising the New England states, New York, Pennsylvania and the two Virginias. In 1923 I was located at Huntington, West Virginia, in an electric appliance store. We sold Easy washers and other electrical appliances. The washers were of a vacuum cup type put out by the Syracuse Washing Machine Company, later known as the Easy Wash-

964 *Winton G. Wilks—For Plaintiff—Direct.*

ing Machine Corporation. Plaintiff's Exhibit 51-B is an instruction sheet that came with the Easy Vacuum Cup Washer instructing the customer how to properly use and care for the Easy Washer. Plaintiff's Exhibit 51 is a piece of literature used to explain to a prospective customer as to the evolution of the vacuum cup washer. It was more or less a matter of sales help in making the sale. There is some mechanical description of the Easy Vacuum Cup Washer on the
965 last part of the circular.

The Court: Does not it all speak for itself? I really do not know what the purpose of offering it is, except merely to show these various machines. There is not anything in it that is an admission of some kind, is there?

Mr. Loftus: No, it is merely to show the type of machine that the Easy Company was putting out and claiming was the best machine on the market up to 1924.

966 The Court: There is no dispute about that. They were selling that particular machine at that time and bragging to the world that it was the best machine.

Mr. Lane: We want to show that they had this other type of machine and they were bragging about it. That is what we wanted to show.

The Court: I should think we could almost take judicial notice of the fact.

Mr. Edmonds: I will make the admission now that they bragged about it then and still, and it is still on the market.

The Court: I cannot see any reason why

he should interpret the language of the circulars. They are produced in evidence and they are there.

Mr. Lane: It calls for the further admission, to save time, that after they started putting it upon the market, the Snyder type of machine, that we charge to infringe here, that their sales of the vacuum cup decreased so much that 80 per cent. of their production was of the new type as distinguished from the old. 968

These circulars, Plaintiff's Exhibit 51, 51-A and 51-B were used generally by the Easy Company in connection with the sale of vacuum cup machines during the time I was engaged in the sale of those machines in 1923 and 1924. They actually illustrate the type of vacuum cup machine that I was selling for the Easy Company.

Circulars offered and received in evidence as Plaintiff's Exhibits 51, 51-A and 51-B.

The territory I covered in the sale of Easy vacuum machines in 1923 and 1924, was part of 969 West Virginia, Kentucky and the State of Ohio. The Easy vacuum machines were very popular in that territory during that time. I would say they practically dominated that field at that time and I was in charge of sales in that particular territory. During that time I came in contact with the Maytag Gyrafoam machine. Plaintiff's Exhibit 12, the Maytag Gyrafoam machine, was the one that I came in competition with in 1923 and 1924. In a great many cases where I went on a home demonstration we would find that the Maytag washer would be in the same home on a competitive demonstration. The arguments that

we used against the Maytag in endeavoring to place the Easy Vacuum machine were, in the first place we would tell them it was too small; the next thing we would tell them there was nothing inside the tub to get the clothes clean, and it naturally would destroy or tear the clothes, and that it was unknown. It was an untried product, whereas the product we were selling was of a well-known principle, it would go back to the grandmother's day of a cone on the end
971 of a stick, and the fact that it was a better-known product, there were more users using that type, or rather that principle of washing at that time.

Mr. Edmonds: I move to strike out the answer of the witness.

The Court: I will let it stand as it is. I do not think it is of any importance. I cannot see as bearing on the question before this Court at this time that there is any particular materiality in the sales
972 argument that was used by the salesmen back in 1924 and 1925.

Mr. Loftus: Simply this, the instructions from the general office.

The Court: You have got the instructions. Those are the sales arguments, and what a salesman said in trying to sell merchandise during that particular period in that territory I should think is a far cry from the question that is involved in this suit.

I have been engaged in selling the Maytag Gyrafoam approximately twelve years and I

have made approximately 1500 to 2000 home demonstrations.

Q. From your own experience in the sale and demonstration of the Maytag Gyrafoam machine, will you tell the Court briefly some of the advantages you found from your experience in the use of that machine?

Mr. Edmonds: I object to that.

The Court: The objection is sustained.

Mr. Loftus: Can I take the answer under Rule 46? 974

The Court: I think we have already covered that, haven't we, quite extensively by the previous witness, who explained in great detail the advantages as he sees them in the Maytag machine?

Mr. Loftus: The point was it goes generally to another territory and another man's experience with this.

Mr. Lane: The only difference it seems to me is that the expert on the stand was a man who had not seen it in home use. 975

The Court: The testimony of a man engaged in boosting his product and making sales arguments, I do not think that adds to it at all.

Mr. Loftus: I am asking him what he found from his long experience.

The Court: All right, very briefly.

Mr. Edmonds: In the other case we had days and days of sales talk of this sort. It even went so far as to have a witness for the plaintiff who said we told them anything we wanted to know, and that is just what they did.

976 *Winton G. Wilks—For Plaintiff—Direct.*

The Court: I do not think it is of any value whatever. On the question of commercial success, I should suppose figures would show that story, if at all, and then, of course, against that you have got the ability of the sales force and advertising and all the rest of it, which probably plays a very large part in the pushing of sales of such a product as this. How much of it is due to merit of the machine and how
977 much is due to the sales ability of Mr. Wilks and other experienced salesmen, I do not know.

Mr. Lane: I understood your Honor ruled he could answer just this question briefly.

The Court: Yes.

A. The first thing that we noticed of advantage was the fact that it washed all of the clothes all of the time, and by that I mean that the clothes were evenly distributed around, all over in the tub, to the point that they were flexed and
978 so moved around by these directional currents of water that the water action could thoroughly wash these clothes, and these water currents were such that the clothes were kept in a position so that the water action could clean the clothes faster and much better than in the type of washer which we had sold previously. In other words, the clothes—

The Court: Isn't it all expressed by saying that it did wash the clothes clean? You can express it in a thousand words, but after all that is about all there is to it, isn't it?

The Witness: Yes.

Mr. Lane: And quicker by very much.

The Court: I don't know whether it is quicker, but we have been over it over and over again about how they were lifted around and the currents of water take them up and sweep them back.

In the Maytag washer, we have washed clothes in approximately two to seven minutes, whereas in the former washer it would take from fifteen to twenty to thirty minutes. Naturally there was less wear in the Maytag. (Circulars put out by the Easy Company in connection with the sale of their machines offered and received in evidence as Plaintiff's Exhibits 52 and 53.) 980

Comparing the extent of sales of the vacuum cup and the Maytag in my territory practically all of the washers sold are those of the gyrator principle.

By the Court:

Q. And you are the salesman for the Maytag Company in that territory, aren't you? A. Yes, sir. 981

Q. How long has it been since you ceased to sell Easy Washers? A. Ten years.

Q. And when you left the Easy Company how did their sales stand in comparison with the sales of other washing machines? A. Well, very well.

Q. They had all the territory, didn't they? Didn't Easy Washing Machines sell by far largest number of washers when you were there with them? A. Yes, sir.

Q. And when you went with the Maytag Company the sales of the Maytag Company were boosted, were they not? A. Gradually; not all at once.

Q. Well, might it not be fair to say that your efforts were partly responsible for selling the Maytag washer? A. Partly.

Mr. Loftus: Well, I will ask this question—

983 The Court: I don't know whether modesty would prevent his volunteering that statement or not, but I wanted to bring it out.

Mr. Loftus: That is not quite the point, your Honor. I will ask this question—

By Mr. Loftus:

Q. To what extent is the Maytag Gyrafoam type washing machine sold throughout the States that you have to do with, as compared with all other types of washing machines, regardless of who they are made by? A. I did not quite
984 understand the question.

Q. (Read.) Of the old types. A. Practically all of the washers sold there in the territory, practically speaking all of them have that type of mechanism.

Q. And all the old types that were used prior to 1920 have disappeared, A. Practically disappeared entirely, yes, sir.

Mr. Loftus: That is the point I was trying to bring out in the other question, your Honor, and not that individual salesmen had a thing to do with it.

Mr. Edmonds: It is conceded that the

985

Easy Company put on the market the machine complained of here in practically the same form in 1929, and has been selling it ever since, and the Hurley Company in 1928 started selling a machine typified by the exhibit here.

Mr. Loftus: I offer in evidence deposition of Fred L. Maytag taken in the Brooklyn Edison case on October 6, 1933, together with the exhibits therein referred to.

986

Deposition of FRED L. MAYTAG taken on behalf of Plaintiff:

Direct Examination:

My name is Fred L. Maytag; age, seventy-six. I live in Newton, Iowa; and my business is manufacturing. I am Chairman of the Board of Directors of the Maytag Company of Newton, Iowa. I have been connected with it since its incorporation in 1909 and have been President and Chairman of the Board of Directors since its incorporation.

987

The Maytag Company was originally incorporated under the laws of Iowa, and is now incorporated under the laws of Delaware. Its business is manufacturing washing machines.

It began the manufacture of washing machines in 1910. Prior to that time it manufactured farm implements.

The first machine manufactured and sold by the Maytag Company was a wood tub with a

wringer and belt power. The next was the same machine equipped with an electric motor. In 1915 the same machine was equipped both with an electric motor and gasoline motor. The machine was generally known as the dolly type and the Maytag Company manufactured and sold the dolly type until about 1924. From 1910 to 1921, in addition to the type I described, there was a sheet metal tub with a revolving cylinder known as the cylinder type machine. Other
989 types on the market were generally referred to as the revolving cylinder type, the cylinder reversing, the cylinder revolving in one direction four or five times and then reversing, the vacuum cup type and the oscillating type. I think generally the washing machine business was in a prosperous condition until 1921. The latter part of 1921, Mr. Snyder, our inventor, called my attention to a machine which he developed and which was being operated by a woman in our town who made a business of doing family washings. While being demonstrated and used by her
990 I saw it frequently and sometime in February, 1922, I became thoroughly convinced that it was a success. We called it the Gyrafoam type, cast aluminum. Mr. Snyder was our engineer and designer of our product. I watched the demonstrations of this Snyder Gyrafoam machine for perhaps three months and then I took one of the first four machines built from hand patterns and started with this machine to the west coast, telling my folks that I would not be back until I had received an order for a carload. I first went to Salt Lake City and displayed the machine to a number of washing machine dealers but failed to make a sale. I then went to Los

Angeles, California, and had the same experience as at Salt Lake. I then went to Oakland, California, set the machine up in a room at the hotel and located a dealer that I thought might be interested. I demonstrated it to him one evening and when he left he said, "If you can sell my salesmen tomorrow, I will be glad to do business with you." The next day I demonstrated the machine to perhaps twenty-five salesmen and about ten o'clock that evening the dealer, Mr. Theodore Schlueter, signed an order 992
for a carload of machines, like the one I had demonstrated. We had nothing in our room to demonstrate with except bathroom towels. During the day the head saleslady in the store of Mr. Schlueter came with two or three salesmen and witnessed our demonstration and finally asked me if I would wash some dirty clothes. They produced four small rugs which we washed to the entire satisfaction of the saleswoman. Mr. Charles Long, our West Coast representative assisted me in making these demonstrations. The
only objection I heard was when I approached 993
Mr. Schlueter and he told me that he had two hundred washing machines in the warehouse and he had just returned from Detroit where he had ordered five carloads more. Mr. Schlueter developed a very successful business the first year. In January of 1923 he attended our sales meeting and left an order with us for thirty-five carloads for the year, which he received and sold, with possibly twenty-five or thirty-five more carloads the second year. I see in this room the very machine that I demonstrated with on the western trip.

That machine was shipped to Portland, Ore-

gon, where it was sold. After it was used two or three, or perhaps four years, Mr. Long, our western representative, obtained it for our archives, and gave a new machine to the user. It was then returned to Newton, where it has been ever since.

Said washing machine offered in evidence as Plaintiff's Exhibit, Early Gyrafoam Washing Machine (Tr. Ex. 9).

There is no doubt in my mind that this is the
995 identical machine which I took with me on that trip. That particular construction was made without change until some time in 1924. Then the agitator was changed by adding a center post. The second machine shows the change. I think it was produced the latter part of 1924 or 1925 and is still being produced and sold except for some additional improvements that have been made. The agitator is the same.

The said Maytag machine offered in evidence as Plaintiff's Exhibit, Plaintiff's Gyrafoam Washing Machine (Tr. Ex. 10).

996 When I went to the west coast, I talked about the machine, visited dealers in different cities and demonstrated and tried to sell it. I continued this personal work of mine about eighteen months when I carried a machine, and covering Illinois, Indiana, Ohio, Pennsylvania and Boston, Massachusetts. Those eighteen months were very successful in sales, increasing our business many times. The round tub is our Model 15. I think we brought that into commercial production in 1931. It does not differ in its operation from the machines that I have previously sold but differs from the tub in that it has a round tub. The operation of the gyrator

and the wringer is the same as in the square tub. I think our company since the issuance of this Snyder patent 1,866,779, has marked its washing machines with that patent number and date. I think the marking was done with a decalcomania transfer, which is placed on the tub and placed on the wringer, and the marking appears on the machine, Plaintiff's Exhibit, Model 15. I think we have universally placed those markings on our washing machines since the issuance of that patent. 998

The round tub washing machine offered in evidence as Plaintiff's Exhibit Model 15 Washing Machine (Tr. Ex. 11).

The patent transfer like the one that appears on that machine offered in evidence as Plaintiff's Exhibit, Plaintiff's Patent Marking under the Patent in Suit.

The circular marked "Maytag Gyrafoam Aluminum Washer" with the notation "1922" was used by the Maytag Company in 1922 to advertise the square tub aluminum machine, known as Model 80 (Tr. Ex. 9). I think the second square 999 tub Gyrafoam machine was designated as Model 90 (Tr. Ex. 10). The first machine was Model 80 and Model 90 was the second machine, and then came Model 15, the round tub machine (Tr. Ex. 11).

Circular offered in evidence as Plaintiff's Exhibit, Plaintiff's 1922 Circular (Tr. Ex. 12).

The next circular with the words "1932" was distributed to our dealers and salesmen and shows three models, the square tub, Model 15, Model 25, which is the same construction as Model 15, except that the tub was aluminum

whereas Model 15 had a porcelain tub. This circular was distributed by the Maytag Company in 1932. We used advertising every year, not always the same type of circular as is displayed here, but these are illustrative circulars. We have used circular advertising and newspaper advertising, but very little in magazines. The total approximate sales from 1922 to 1932 is 1,900,000, amounting in dollars to $164,000,000.

We featured the gyrator in our advertising
1001 because of its efficiency and superior work over any other type of washing machine, and we have always and continuously featured the gyratator.

The 1932 circular offered in evidence as Plaintiff's Exhibit Plaintiff's 1932 Circular (Tr. Ex. 13-A).

Cross Examination by Mr. Edmonds:

We have not made other types of washing machines than those exemplified by these three here present since 1923 when we discontinued
1002 the manufacture of the other three types that we have been building. We built the Model F for the Frederick Company possibly in 1930 and it was built for less than two years and has been discontinued.

I don't think it had any deficiency that resulted in discontinuing the manufacture, the Frederick Company failed to make a success in selling it and we did not offer it to anyone else. The Model F has the same agitator and the same wringer as the other machines. The only difference was that it was a copper tub. In all other respects it is substantially the same as our Model 15.

XQ110. You spoke of seeing this machine made by Mr. Snyder in October of 1921. You personally saw the machine operated at that time, did you? A. I did; many times.

XQ111. When you saw it in October, 1921, was that the first time that you had seen it? A. It was.

XQ112. Was that the first time you had heard about it? A. No.

XQ113. You had known that he had been working on it? A. For some time prior. 1004

XQ114. What is your knowledge on that subject? A. As to what?

XQ115. What do you recall that you knew about the development of the machine prior to October, 1921? A. Oh, I couldn't say definitely. It might have been two or three years, but we knew for a long time before he showed us the machine that he was developing a new machine.

XQ116. You don't remember how it first came to your attention? A. Mr. Snyder told me that he was developing something new.

XQ117. You don't remember when that was? 1005
A. No.

XQ118. Did you have anything to do with starting him on the development work or did he start without instructions from you? A. Well, we may have told him to develop something new and different perhaps for two or three years before.

XQ119. You have no specific recollection on that score? A. Oh, no. I couldn't remember any dates. Mr. Snyder was developing, he had an assistant and was developing and making changes in our product. That was his responsibility and his duty, and he might have worked

1006 *Fred L. Maytag—For Plaintiff—Cross.*

on a product or an improvement on our product for two or three years before we really knew what he was doing.

XQ120. So you merely knew that he was working on improvements and then in October, 1921, you saw this machine; that is the fact? A. That is right.

XQ121. And what you saw was substantially like this machine at the left here? A. It was.

XQ122. In the second of these two machines
1007 that you have identified there appears to be a column projecting upwardly from the center of the agitator and in that respect the machine is different from the first one. What is the function of that central column?

XQ123. Mr. Maytag, I recognize that you have not asserted that you are a mechanical expert but I assume that you have some considerable familiarity with the features of the product of your company and I would like to have you state what your idea is as to this feature of difference between these two ma-
1008 chines. A. Well, I think perhaps one reason for that construction was to make it more convenient or easier to lift the agitator out of the machine.

XQ124. You say that is one reason for making that. Is that all you think of as the only purpose of having it? A. It is about the only thing I can suggest.

XQ125. So far as you know, is that the idea of your associates in the Maytag Company? A. Well, sometimes improvements are made which may not really be much of an improvement but it gives an opportunity for another sales argument. That is not uncommon. Our dealers, our

field men, many times ask us, "Well, when are you going to give us something new; when are you going to give us an improvement, something we can talk about?" In fact, once in a while our dealers or salesmen will suggest that we ought to have a new model every year like the automobile people do, but we do not try to have annual models.

XQ126. Well, a change often serves its purpose in enlarging sales whether or not it is a change that is beneficial to washing? A. Yes. 1010

I don't think that a machine wanes in popularity, but there is that demand from the dealers and salesmen for something new to talk about and this enlargement or upright on the agitator served that purpose. It also affected possibly some improvement in the assembling of the agitator, in the bearings supporting the agitator. I am not a mechanical expert and could not state what that advantage is. I don't think that the upward extension affects the operation or efficiency of the machine in the least. The presence of that upright in the center 1011 of the agitator is the only respect that I think of now in which these two machines differ. There is a difference in the second machine, the agitator sets down in a receptacle. We think that difference is of some consequence in the operation of the machine. It gives a sediment zone, permitting the sediment washed out of the clothes to settle under the agitator. I think there is a patent on this feature. I do not think that in the sale of these washing machines we give directions to the purchasers as to what quantity to wash at a time. Our salesmen usually give instructions as to the quantity of clothes

to put into the machine. Some of our circulars may give directions as to that. We perhaps tell our salesmen what we want them to say on that score, but the main thing we tell our salesmen as to quantity is to be sure and not overload the machine, or to put more clothes in the machine than are fully covered by water. The water should be above the clothes over the entire area of the tub. I think our circulars generally say that a tubful of clothes will be washed
1013 from two to three minutes to seven minutes, depending on how soiled they are. It would not depend on how much clothes is put in, providing there is water covering the clothes. That is substantially the only direction that we use by way of telling people not to overload. I don't think we ever tell our salesmen to use a specific number of pounds of clothes as the limit. When the clothes are submerged below the surface of the water and the agitator is in operation, the clothes generally remain suspended in the water, and are pushed around in the water by
1014 the agitator. As to whether you put in a small or a large amount, the only difference I can think might be that a smaller quantity would be washed clean in perhaps a little shorter time than a heavy lot. The movement of the water and the clothes would be the same.

Speaking of washing machines between 1910 and 1921, I know of no type except the four that I have described. The dolly type has a dolly in the lid of the machine. A dolly means a disc with usually four pegs that extend into the water from the lid of the machine which agitate the clothes. I do not know about an agitating element inside the tub consisting of a

disc with cleats in it. I would not consider such an agitating member as a dolly, as I understand the meaning of the construction. That dolly was operated by being attached to the lid of the machine and operated by the mechanism on the top of the lid reversely.

It is not necessary that it have pegs in it to work. I know where instead of having a peg they have perhaps a flat member, but the action in the lid was the same as the peg. A peg would be round. The flat member instead of a 1016
peg might be something like an inch or three-quarters of an inch in width, which extends down into the water to act the same as the peg. My understanding of the construction of the dolly is that it is limited to a structure including pegs, round or of other section. We were building washing machines from 1910 to 1920 as a side line and my attention was directed more to farm implements than washing machines. The reason for making the three machines produced here, first two square tubs and one round tub, Plaintiff's Exhibits 9, 10 and 11, the reason for 1017
making the round tub was a lower cost of production, enabling us to sell at a lower price. The water is reversed in either the square or round tub. It is reversed in its travel circumferentially around the tub. We think that that is preferable because of the success we have had with it in our sales. The action in the square tub is more efficient than in the round tub. The only reason I can give is because of seeing it. The square tub will clean a tubful of clothes in less time than the round tub. I think there is a different action because of the improved

work. I can only tell you that the square tub does the work quicker than the round tub. I only know that the action and efficiency in a square tub over the round tub is from demonstrations. I think The Maytag Company started to use the patent transfer immediately after the patent was allowed. I have no definite information. I think various manufacturers of washing machines have been notified that we claim they are infringing on the patent here in
1019 suit but I don't think that notice has come from our office, but it has gone out through our instructions. I do not know how many manufacturers have been notified. I think the notice was sent out by counsel for the Company. The machine, in October, 1921, was the only one of its kind at the time and was operated by a washer woman in her home in the northeast part of Newton, Iowa, where she did twenty or more family washings every week. I think that machine is probably still in her home. I have not seen it since 1921. It was after the completion
1020 of that machine that the four I spoke of were built and the machine here is one of the four that I took with me to the coast.

I don't think there was any change in construction between the first and second models. Since 1922 our company has employed a number of salesmen. At times it may run to possibly one hundred fifty or one hundred seventy-five. In addition to that the dealers to whom we sell machines in quantities had salesmen too who quite commonly would go from door to door making sales. They go right into the homes of prospective purchasers and solicit sales. That has always been a part of the business of The

Maytag Company since 1922. As to how the number of our salesmen would compare to others, we have no way of knowing what our competitors have. We put out a circular and supply them in quantities to the dealers and he will put his name on the circular if he chooses to.

Circular offered in evidence as Defendant's Exhibit 1.

I am still of the opinion that the square type of tub is better than the round tub, except with 1022
respect to the item of cost. So far as I know, the machine operated by the woman in Newton was the first machine of this type built by Snyder or The Maytag Company.

Mr. Loftus: We offer in evidence a copy of Judge Byers' findings of fact in the case of Maytag against Brooklyn Edison.

Mr. Edmonds: Objected to.

The Court: Sustained.

Mr. Lane: I would like to have them 1023
marked for identification if we may; just for reference, that is all.

The Court: Yes.

(Findings of fact marked Plaintiff's Exhibit No. 54 for identification.)

The Davis machine offered in evidence as Plaintiff's Exhibit 16.

1024 *Lucien I. Yeomans—For Plaintiff—Recalled—Direct.*

LUCIEN I. YEOMANS, recalled by the plaintiff, further testified as follows:

Direct Examination by Mr. Loftus:

Q. Mr. Yeomans, in the case of Maytag vs. The Brooklyn Edison Company the defendants offered a washing machine which they stated was the Davis machine made under the Davis patent which we have been discussing here. That
1025 machine was put in as Defendants' Exhibit 2-A. Did you examine that in the courtroom in the Brooklyn Edison case? A. I did.

Q. And in what condition was it when it was brought into the courtroom? A. It was inoperative and wrecked.

Q. Now, how does the Davis machine in the adjacent room here, which is in this case as Plaintiff's Exhibit 16, compare with the Davis machine which was in the Brooklyn Edison case as Defendants' Exhibit 2-A? A. My examination of them leads me to say they are iden-
1026 tical.

Q. And does the photograph in this case, Plaintiff's Exhibit 50, the two views on the right-hand side, show the condition of the Davis machine which was in the Brooklyn Edison case as Defendants' Exhibit 2-A when it was brought into the courtroom? A. Yes, I believe that these are photographs of that machine. They seem to be so to me, as I testified to yesterday. The machine on the left has nothing to do with it. The two views in the center and the right of this picture are photographs of that machine, I believe.

Prima facie proofs closed.

1027

DEFENDANT'S PROOFS.

Mr. Edmonds: The defendants offer in evidence a copy of the records in the prior suit of The Maytag Company vs. The Brooklyn Edison Company, as printed and filed with the Court of Appeals in that case. The record is in six volumes. I suggest that it be marked Defendants' Exhibit A and the several volumes can be marked A-1 to A-6, inclusive.

1028

Mr. Lane: I object to that as incompetent, irrelevant and immaterial and having no bearing here on the testimony. It is just dumping into the record the material that has not even been stipulated into this case, and it is available furthermore for the Court here if it cares to look at the record. There are many depositions we have offered here—

The Court. I am not inclined to receive this entire record.

1029

Mr. Edmonds: I do not offer this record as proof of the facts that were proven by this record as facts in the Brooklyn Edison case. I offer this for the convenience of the Court for reference only, if the Court finds occasion to refer to it, in order to determine what the Court of Appeals had before it when it ruled on the Snyder patent in the other suit. For that purpose it is admissible.

Mr. Lane: I am going to do my best to keep out the necessity of printing such a record as that on appeal.

The Court: Cannot it be offered as a physical exhibit?

Mr. Lane: I do not see why it cannot be identified without being offered, if it is simply offered the way we have offered some of ours, identified so that it may be available to your Honor.

The Court: I will receive it as a physical exhibit on the understanding that under no circumstances will it have to be
1031 printed as a part of the record in this case, but it may be referred to for any legitimate purpose.

The Court: The record in the Brooklyn case should not be printed as a part of the record. It will simply be identified and received as a physical exhibit, so that if any reference is needed it can be made.

The Court: You should add to the exhibit "For identification" with the understanding that it is offered and received so that if any reference is needed to it
1032 it can be made.

(Said record marked Defendant's Exhibit A for identification.)

Defendant offered in evidence a binder of patents as follows:

"PRIOR ART PATENTS.

Hittel	61,067
Ferguson	83,145
Hermance	88,478
Covel	95,565
Lodge	95,573
Morse	106,853

Groat	113,762
Runkle	131,629
Crawford	266,975
Mears	443,778
Christman	444,421
Foster	832,787
Mills	1,118,210
Coffield	1,131,466
Staley	1,155,107
Spaugy	1,227,335
Altorfer	1,227,733
Davis	1,240,826
Schneider	1,253,536
Ritz	1,393,969
Doughty and Davis	1,496,305

1034

British.

Jardine	18,202
Hanna	19,027
Barnes	19,566
Davies	24,494

French. 1035

Henin	363,514
Versaille	398,798
Hershey	470,923

German.

Muhlmann	62,444

Reference Patents.

Haag	16,746 Reissue
Marchand	273,569
Wright	456,370
Russell, *et al.*	530,854
Smith	593,910

Foster	907,766
Phillippy	927,069
Hoffman	1,157,222
Lewis	1,262,962
Wolcott	1,390,224
Unruh	1,459,483
Snyder	1,209,893
Snyder	1,391,214
Snyder	1,506,783
Snyder	1,644,959
1037 Snyder	1,657,699
Snyder	1,693,003
Snyder	1,714,894
Snyder	1,729,751
Snyder	1,973,230"

Mr. Edmonds: In this connection I suppose the record should show that printed Patent Office copies of U. S. and foreign patents may be received with the same force and effect as the originals and that the dates appearing on them are to be
1038 accepted as correct, unless errors are made to appear. In this exhibit book there are three French patents and one German patent, and the book includes translations of the specifications of those four patents and the translations are the same as the translations that were used in the course of the trial of the Brooklyn Edison case. So may we say that these translations may be accepted as accurate translations, subject to the right to call for proof?

The Court: Subject to verification.

Said Book of Patents, including trans-

lations, received in evidence subject to correction.

(Marked Defendant's Exhibit B in evidence.)

Mr. Edmonds: I offer in evidence certified copy of the file history of the patent in suit as Defendant's Exhibit C.

(Marked Defendant's Exhibit C in evidence.)

Mr. Edmonds: Also offer in evidence certified copy of the proceedings of the 1040
Patent Office in connection with the Snyder Patent Number 1,506,783.

Objected to.

Objection sustained.

(Said proceedings marked Defendant's Exhibit D for identification.)

Depositions of Thomas W. Behan, George L. Davis, Robert D. Quinn, William Green, Vernon J. Wooster and Herman W. Doughty offered in evidence as Defendant's Exhibit E. Marked Defendant's Exhibit E in evidence. 1041

DEPOSITION OF THOMAS W. BEHAN, A WITNESS PRODUCED IN BEHALF OF DEFENDANT, TAKEN AT BINGHAMTON, N. Y., JANUARY 24, 1934.

Direct Examination by Mr. Free:

My name is T. W. Behan; age 57; residence 66 Riverside Drive, Binghamton; I have no occupation; I was formerly employed by the 1900 Corporation as General Manager. I joined

the 1900 organization in the fall of 1918 and became actively engaged about the first of the year. The business of the 1900 company is manufacturing washing machines and ironers. When I joined them in 1918, they made hand washers, and power driven, water driven washing machines.

Describing those washing machines, the hand washers were made of wood. The tub was actuated by a lever on the rim moving to and fro
1043 —backwards and forwards rather. The same machine was driven by electric motor and belt somewhat modified in construction to adapt this motor drive. It had a fixed wringer. The electric machine was known as the oscillating type commonly advertised as the Cataract. Another type of electric machine was made of wooden tub and legs, motor mounted on the sub-structure and belted to the mechanism at the top, which in turn actuated the agitator and the wringer.

Describing the washing mechanism, the machine described as the Cataract washed the
1044 clothes by tossing them backward and forward, described generally in a path by a figure 8. It had a movement which pushed the water back and forth in the clothes, the clothes rubbing somewhat against the sides of the tub and turned over generally in this figure 8 motion to expose the greater portion of the clothes to the rapidly moving water. The hand washing machine had a fixed agitator with several symmetrically arranged vanes on the under surface. It was possible for this agitator to move up and down in a vertical plane rubbing the top of the clothes and at the same time forcing the water by centri-

fugal force towards the rims tending to turn the clothes over and at the same time force the water through the clothes. The swing depended upon the will of the operator, forcing the tub around. Possibly some described a segment of a circle anywhere from 60 to 180 degrees or thereabouts. The third model had motor mounted as before described in the bottom and drove the agitator through the top by the power imparted by a belt. In general this had the same action. 1045

I would refer to the foregoing machines as Cataract and hand washer model, and the last or third Form 1 Agitator, The Form 1 Agitator and the hand model had substantially the same performance. 1046

The hand model carried out a line of thought or a principle that had been the subject of development since the inception of the company—the 1900 Corporation—and the Form 1 model was the development of this same thought—progressively developed as time went on and adapted to a power driven machine.

Q16. Do you see any one of those machines in this room? A. Yes—that machine over there (indicating one in the front of the room). That was known as the Agitator Form 1. We built those in Form 1, 2 and 3. May I ask substantiation of that? 1047

Q17. That will be all right.

Describing the machine as I see it standing here designated as Agitator Form 1, the machine has a wooden tub, the inside of the vertical staves of the tub having a multiplicity of corrugations. The bottom of the tub has a multiplicity of corrugations. It has four wooden legs, a drain cup. The motor is mounted on the bot-

tom underneath the tub. It has a belt drive which transmits the power of the wringer to the mechanism mounted on the top of the tub. This said mechanism having an actuating unit which imparts a reciprocating motion to the agitator which is mounted and driven through the lid—which is driven through the lid of the tub. Said agitator having a large diameter and also with a multiplicity of vanes mounted on the bottom in symmetrical manner. This agitator is capable
1049 of floating up and down in the tub depending on the volume of water and clothes. The lid which did not cover the complete top of the tub, but a greater percentage of it, was designed so that the agitator could be lifted out of the tub and thrown back over the operating mechanism mounted thereon. This same mechanism carried with it gears and other means of operating the wringer so arranged that the rollers could be stopped, started, and reversed. The early models —the wringers being limited, and the later models—the wringers being able to be swung
1050 around 360 degrees.

Q20. What determined the vertical position of the agitator during operation of the machine? A. It was designed so that it could float up and down on the stem or guide post which was held in a bearing in the cover.

Q21. What do you mean float up and down? On what? A. On anything which resisted it, either the water or the water and clothes.

Q22. What determined the position of the agitator, the clothes or the water? A. Both—if there were no clothes, then water. If there were clothes, then clothes and water.

Q23. Through what angle was the oscillator

oscillated approximately? A. From 120 to 180 degrees.

Q24. At what speed was oscillation permitted approximately? A. From 40 to 60.

That machine was made by the Binghamton Washing Machine Company, a company owned by the same management as the 1900 Washer Company.

I recognize the copy of U. S. Patent No. 1,240,826, issued September 25, 1917 to George L. Davis. It shows a washing machine and an agi- 1052
tator. The patent drawing covering a washing machine and particularly lays stress on an agitator for a washing machine. That patent refers to Form 1.

Machine Form 1 offered in evidence as Defendant's Exhibit 2 (supplanted by Defendant's Exhibit 2-A).

U. S. Patent No. 1,240,826 offered in evidence as Defendant's Exhibit 3.

Q29. About how long after you joined the 1900 organization in 1918 was the wooden machine identified as Defendant's Exhibit 2 sold 1053
by the 1900 company? A. I would judge about three years. It takes about that length of time for any organization to get selling a new model, particularly that which has been in production for several years.

Q30. That would make it up to about 1922—no, 1921. During that period, did the machine continue to be manufactured in the form in which we now see it as Exhibit 2? A. During that three year period. I would rather say approximately three years to be accurate as I can't remember 13 or 14 years back.

Q31. Answer the question. A. Substantially so.

Q32. What change if any can you place in this design? A. None that were basic for the reason that during that period the machine had to be abandoned or was to be abandoned.

In the forepart of this three year period business conditions were very good from the standpoint of washer sales. The latter part was very bad. We attempted to meet these conditions by
1055 producing the machine which in the opinion of our commercial and sales divisions would more nearly reach what our competitors were offering. We were led to make a change because of commercial pressure and the fact that the machine cost too much money to build and, in the judgment of our sales division, was too large to meet the customer's demand. I can't say exactly when we made the change, it's a matter of record. This sales pressure from the outside was mostly in the latter part of 1921 and the forepart of 1922.

1056 As to what personal part I had in making such changes, as general manager I authorized the production of new models, designs, productive schedules, advertising schedules, merchandising programs. Much of this was by verbal instructions, some by written instructions to the various heads, foremen, superintendent, engineering division, or the sales division. These men would be Mr. Davis, Mr. Doughty, Mr. Quinn and others. Mr. Davis was superintendent of the plant and Mr. Doughty was in charge of the engineering division of the plant. I first met Mr. Doughty sometime in 1919; I don't recall the date. Mr. Doughty was an assistant of mine.

When he came to the company in 1919 I assigned him in charge of the engineering department. I can't recall his particular assignments. In general he was assigned with my help to organize a drafting and engineering division to carry on the ordinary engineering work of interest to the company, such as drafting, designing, making drawings of new developments. Designing anything that the company was interested in manufacturing. The company at that time, in 1919, was manufacturing washing ma- 1058
chines and we had started an ironing machine. Mr. Doughty was occupied with the ironing machine from 1919 until it was abandoned. That may be several years. He also worked on washing machines—everything that the company was manufacturing or developing. He worked on all washing machines previously described as I recall.

Q58. With whom did you discuss new developments in machines contemplated by the company? A. Various individuals. Sometimes our sales department—generally first our sales 1059
department, except that it might be new invention.

Q59. In cases of new inventions which you mentioned, whom did you discuss them with? A. Whomever I thought had any ideas that affected them. Might be the superintendent, might be Mr. Doughty, might be some of the men in the shop.

Q60. What new invention in washing machines if any were contemplated in 1919 when Mr. Doughty came with the company? A. Can't say that there was any new invention but there was

a desire to improve the products—the general result from progressive steps.

In 1919 there was a desire to improve the products. I don't recall any new washing machine in 1919 or 1920.

In 1921 a machine was placed in production known as a Model Agitator No. 4. It was placed in production the early part of the year. I would say, without reference to records. The machine was an agitator type known as an agitator type
1061 machine in contradistinction to our Cataract machine. It consisted of an entirely metal body and replaced the wooden machines. It had the mechanism including the motor placed underneath the metal base. Mounted on top of this mechanism was a standard which carried the wringer head and wringer. In the wringer head the conventional wringer gears for the control of the rubber rollers were mounted. The operation of the wringer being actuated by the motor through the mechanism mounted beneath the base. Inside the tub was a submerged agitator
1062 which was a plate on the top of which were mounted a number of segments for agitating the water. This agitator was driven through a shaft which went through the bottom of the tub and a gland or stuffing box which prevented leakage of water through the bottom of the tub.

The agitator is driven by a pinion which was actuated by a rack, the motion being imparted through a band which wrapped around this pinion and as the rack passed backward and forward it gave a reciprocating motion to the agitator. As I recall, the agitator was oscillated 40 to 60 reciprocations, more nearly 40 to 50,

I should think. The oscillator was oscillated, as I recall, from 120 to 180 degrees. The agitator had vanes on its upper surface.

The relative positions of the clothes in the tub during the oscillation of the agitator depended upon the ratio of the water and the clothes. The machine was designed for a proper ratio of clothes and water so that the clothes would be more or less churned and still be susceptible to the frictional contact of the vanes and still prevent the clothes from being thrown out of 1064
the tub. There was a turnover of the clothes.

I identify the machine in the room as the Form 4 of the 1900 Company. I am able to make this identification from my knowledge of the products they manufacture. As to the date when it was made, we can tell that exactly by the number. The number on top of the standard looks like 1033. This number identifies the machine as it went through the plant and a log is kept at the factory, so that it can be identified later whenever it must be.

Q79. How many machines, if you know, were 1065
made before that machine? A. I can't tell. The records will show—the factory records. We did not always start at No. 1.

(The machine identified as Form 4 offered in evidence as Defendant's Exhibit 4.)

Q80. You mentioned this type of machine as having gone into production as early as 1921. What preceded the production steps? A. In what way? I don't believe I understand your question.

Q81. How did you go about preparing your manufacturing operations before placing the machine in production? A. It generally resulted in a discussion of the necessity of a change in our standard production lines. In many instances starting from the commercial division, other instances starting from the factory superintendents, and in other cases from the engineering or cost divisions.

Q82. What did the engineering division have
1067 to do with a machine before it went into production? A. They had to ascertain in a very general way at least what the management was attempting to place in production.

Q83. And how did they go about finding that out? A. In most cases it would be brought to them by the management.

Q84. In what form? A. Verbal discussion or in conference with various heads of departments who wanted it changed or at least thought they wanted it changed.

I recognize the patent No. 1,496,305 issued
1068 June 3, 1924, to 1900 Washer Company as assignee of Herman W. Doughty and George L. Davis. It shows sketches and drawings of a washing machine and an agitator for a washing machine known as Agitator Washer Form 4, manufactured by the 1900 Company. It shows the same machine as Exhibit 4 with modifications in details of design.

(Said patent offered in evidence as Defendant's Exhibit 5.)

As to the differences to which I just referred between the Form 4 machine and the patent,

the mechanism described in the patent, Defendant's Exhibit 5, consisted of a rack bar which actuated the pinion with a bar. This was later changed to the agitator actuated by a rack and pinion. And as I recall the overload switch, electrical switch, mounted on the standard, was not on the original machines.

Q93. If you recall how this machine which became Form 4, Defendant's Exhibit 4, was originally constructed as compared with the Form 4, Defendant's Exhibit 4, as it exists today, please describe the differences. A. I thought I just did.

Our books would show how many machines Form 4, Defendant's Exhibit 4, were manufactured and sold by the 1900 Company. I would say approximately 700 were sold in possibly two years, possibly one year. That is shown in our books.

The Whirlpool machine followed the Form 4 washing machine. It was a machine of much smaller physical dimensions. It was a metal machine throughout. All the driving mechanism was mounted on the bottom. It had an agitator mounted on the bottom. This agitator had a base of small dimensions—rather small dimensions—possibly 12 to 14 inches in diameter. On the top of this base was a comparatively large single vane of substantial dimensions as to height and width. The vane starting from approximately the center of the agitator and extending from a small height outwardly and forwardly to quite a substantial height at the rim. In all other features it is about as the machine described heretofore.

The patent 1,748,442 issued to the 1900 Cor-

poration as assignee of George L. Davis, shows the Whirlpool machine manufactured by the 1900 Company that I referred to as succeeding Form 4.

(Said Patent No. 1,748,442 offered in evidence as Defendant's Exhibit 6.)

We introduced our machines to the national sales organization through our local sales man-
1073 ager. The machine was described and demonstrated to him and he in turn either by advertising through periodicals or by written communications, by personal contacts, or conferences of district managers at the home office or elsewhere.

Q103. What conferences, if any, were held at the home office with respect to Form 4 machine, Defendant's Exhibit 4? A. I don't know. That is a matter of record if there was such a one.

If a machine was radically changed in design or appearance, a sample was shipped to the
1074 offices which were far from the factory, or else the manager of the district nearer the factory was brought in to the factory.

The dealer most removed from the office was from the Western Coast, W. Lee Holmes. He had been Western Coast Sales Manager for the 1900 Company about thirteen years.

Q108. What did Mr. Holmes have to do with the Form 4 machine, if anything? A. He had nothing to do with it. The introduction of the machine to him in this territory, as I recall, was through our sales manager, at that time Mr. Harry L. Barker.

Q109. How was Mr. Holmes acquainted with

the actual machine? A. The sample of a machine was forwarded to him as I recall. That, however, is a matter of record.

Q110. Do you know whether or not Mr. Holmes actually got some of those machines—Form 4? A. I don't know. Our sales records will show.

I can identify the photostat of a sketch on account of the legend "Agitator Electric Motor Design, T. W. B. 2/9/20." The notation is my own handwriting and I made the sketch. It 1076
was made, as far as I know, the date it says, 2/9/20. I believe Mr. Doughty's handwriting is at the bottom and also his initials. My initials are under the legend.

As to why I made the sketch, fourteen years is a long while to go back to recall the details of it, but as my memory now serves me, at that time we were having a lot of complaints to the mechanical imperfections and difficulties of the Form 1 machine described, Exhibit 2, and from our sales department's viewpoint it seemed to have outlived its usefulness. There was such 1077
complaints as being top heavy, the lid being thrown back without any water in it, it toppled over and in some cases was injured, particularly as the wringer was in the point to help that condition of top heaviness. My attempt, as I recall, was to take all that weight off the top and mount it on the bottom to make a more stable machine and a machine of better appearance.

This sketch carries out that thought in that it shows the machine without the mechanism on the top and the motor mounted on the substructure or base underneath the tub.

1078 *Thomas W. Behan—For Defendant—Direct.*

This sketch illustrates what is now the conventional or modern models of washing machines wherein the mechanism is mounted on the bottom and not on the top. The mechanism to operate the machine was never detailed. That sketch illustrates a machine with the motor and mechanism mounted underneath with an upright or driving post coming up through the bottom of the tub and driving an agitator.

1079 (Photostat of the sketch offered in evidence as Defendant's Exhibit 7.)

I made the photostat of an original copy that I sent to Mr. Clark of Fish, Richardson and Neave.

Stipulated that the photostat copy may be received in evidence with same force and effect as the original.

I don't recall any people that I showed this sketch to. I probably turned it over to Mr. Doughty, he being in charge of the engineering department. I don't recall discussing it with Mr. Doughty.

1080 I don't believe there was any intention of making the machine other than showing the principle of taking the mechanism from the top and putting it on the bottom.

I see nothing in common particularly between the machine of this sketch and the Form 4, Exhibit 4, except the mechanism is mounted on the bottom and the agitator is driven through the tub from the bottom.

Q129. Going back to a discussion of the Form

4 machine, Exhibit 4, what development work preceded the production of this machine early in 1921? A. I believe there was some very general specifications given by me to Mr. Doughty describing what I had in my mind to meet the demands of the organization for a new machine in the line.

I believe there is a record of the general specifications. I don't recall what they were without reading them. The record handed me dated 9/30/20 apparently in Mr. Doughty's 1082
handwriting which, if my memory serves me, describes very nearly what I discussed with Mr. Doughty with regard to the requirements and specifications for a new machine to be introduced.

Q132. When did that discussion take place with Mr. Doughty? Do these records suggest any date to you? A. No, it does not. I am assuming either on that date or approximately on that date.

Q133. Do you recall the discussion? A. I do not. 1083

Q134. Please examine these records and is there any doubt in your mind that the discussion took place about the time described? A. I can't recall except the general c[illegible]ion that that is what we were after at that time.

Q135. In going through this sheaf of records you referred particularly to a note dated 9/30/20. Is there any doubt in your mind that this is the date that the discussion took place? A. I can't say.

Referring to the carbon copies in this sheaf of papers addressed to Mr. W. Lee Holmes, San Francisco, Cal., in charge of our Western Coast

Sales Division, I do not recall when I first saw those letters. They were handled by our commercial division. This sheaf of papers came from the files of the 1900 Corporation. I do not recall whether they have been there ever since they were placed there. I rather think some of them have been in Mr. Clark's office in New York. I don't handle those details and I don't know whether they were taken from our files and turned over to Mr. Clark. Probably Mr.
1085 Quinn handled those details, but I don't know. He is my assistant.

As to the next thing which occurred in the history of the Form 4 machine, Exhibit 4, after my discussion with Mr. Doughty, I don't recall the details but natural consequences—Mr. Doughty would take up and attempt to formulate a program of at least developing a machine so described, developing specifications. I can't answer how diligently Mr. Doughty did so. I was associated with him quite closely in the development of new machines.

1086 I know that the Form 4 machine took on physical shape sometime in the early part of the year 1921.

An attempt was made to lay out the machines to the proportion and, of course, fit it in to our shop facilities. In doing that experiments are generally made and a very crude form to predetermine the shape, design, strength, cross sections of the component parts that went into the machine. That was as a general rule done by building up rough parts which we might have around the shop, such as frames to make the machines on and test out principles. All of

that took considerable time in drawings and specifications to that end.

I had the usual contact with Mr. Doughty during that period. As to my contact with the development of this machine, it was my general rule to contact the various departments that had to do with the making of the various parts and offer such advice and suggestions as I could give that would improve or which would prove to be helpful.

This original model was made in our model 1088
room.

I think the tub on this exhibit represents the type of tub used. The legs represent the type of legs used, the gear box, etc., the wringer head, the wringer, that standard, possibly the top.

I do not know whether or not this is the original model or part of it.

(Model offered in evidence as Defendant's Exhibit 8.)

1089

I don't recall seeing the sheaf of papers until this case in question came up because they are handled in a different division. I can identify the blue print attached to the sheaf of papers. I remember that it was drawn up, I believe, at my suggestion by Mr. Doughty to send to Mr. Clark of New York. I don't recall how long ago. It was to describe the test of this proposed machine known as Agitator Form 4 which Mr. Clark witnessed at Binghamton. Mr. Clark was our patent attorney and frequently reviewed our activities and went through our shops and looked over our prints and developments. He

was interested in having this described. After Mr. Clark's visit in connection with this machine, Mr. Doughty prepared the print and sent a description as to his ideas of the performance of the machine—characteristics of washing, etc. Mr. Clark, our patent attorney, advised us in regard to all our new developments. I don't recall that he gave us any advice in connection with this machine.

The patent on this machine was issued No.
1091 1,496,305, Defendant's Exhibit 5.

Q172. Please examine the letters among that sheaf of papers before you. Are there any letters in there which would suggest to you what Mr. Doughty did with respect to the drawing that you requested him to prepare for Mr. Clark? A. No, I find nothing in here except that he made a test.

Q173. Please refer to any letters regarding that test. A. The test was March 23rd and one March 25th. Also February 8, 1921, by Mr. Doughty from which he drew the conclusions
1092 contained in his letter of March 23, 1921, addressed to Mr. Clark.

Q174. Did you have anything to do with the writing of that letter to Mr. Clark? A. No, I did not.

Q175. Did you instruct Mr. Doughty to write such a letter to Mr. Clark? A. As I recall I instructed Mr. Doughty to give Clark a complete description of the machine and this is the method and form in which he did it.

Q176. Do you recall seeing that letter after it was written? A. I do not.

Q177. Now referring to that test which you

mentioned a while ago. Do you recall any such test? A. No, I do not.

Q178. Did you witness any tests made by Mr. Doughty on the Form 4 machine? A. I witnessed many tests with Mr. Doughty and others.

Q179. What was the nature of these tests? A. To determine the characteristics of the machine with regard to washing, mechanical ability, etc.

Q180. So far as you know you may have witnessed the tests recorded on these yellow sheets? A. That may be so. 1094

Q181. Do you recall the result of any of these tests, what your conclusions were, etc.? A. Not specifically. Only in a general way.

Q182. What were they? A. The general characteristics of the machine warranted going into production.

Q183. Did the machine justify your conclusions according to subsequent developments? A. I would say that we did not have time to determine before it was taken out of production and for other reasons already described.

Q184. As a result of these tests such as the 1095 one described on the yellow sheet dated February 8, 1921, you did decide to go into production on that machine? A. Not on that account but it answered for the addition of the machine to the line. I had all the say so. It was final with me whether they went in or not.

Q185. Did these tests lead to the formulating of that conclusion? A. I presume that they and other tests justified my action.

Q186. Before you joined the 1900 organization in 1918 what contact had you with the 1900 Corporation or the Binghamton Washing Machine Company? A. Did I know them?

Q187. Did you know the product of the 1900 Company before you came with it? A. I knew them as a customer of the G. E. Company by which I was employed.

Q188. In what capacity? A. In charge of their general motor division.

Q189. What did 1900 buy from G. E.? A. Fractional horse power motors.

Q190. For what purpose? A. For operating washing machines.

1097 Q191. How long prior to 1918 were you associated with 1900 as a salesman for motors? A. I would say along 1911 approximately.

Q192. Do you know because of this association, when the Form 1, Defendant's Exhibit 2, came on the market? A. I do not. That's a matter of record with the company.

With respect to the functions and relations of the 1900 Corporation and the Binghamton Washing Machine Company, the Binghamton Washing Company and the 1900 Washer Company were substantially owned by one Mr.
1098 Crary. I would say at least 95% of the ownership was vested in him. The 1900 Washer Company was a sales company. The Binghamton Washer Company was a manufacturing company owning the plant and all its assets. The sales company was an organization made up of a few men who Mr. Crary had interested with him and who owned no equity in the Binghamton Washing Machine Company but a small equity in the sales company.

It was my impression that the organization was combined at the time that the Form 4, Exhibit 4 machine was made and the Binghamton Washer Company was dropped and the 1900

went on. The 1900 Washer Company made and sold the Form 4 machine but that is a matter of record. The Form 4 machine, Exhibit 4, is representative of the machines made by the 1900 Washer Company beginning early in 1921, with the exception previously stated. It represents the commercial type of the machine of which we sold about 700.

Q197. Where did the chain drive come in that you described? A. That was the first development that I recall. It is my impression that 1100 few if any were sold commercially.

Q198. Then the chain drive for the Form 4 was the predecessor of the rack bar drive? A. That is as I recall it. The chain drive was a purely experimental development and not a commercial article. Again I repeat I doubt whether any of them were sold commercially.

Q199. Do you recall of any having been sold? A. I don't know. They may have been, however.

Q200. Then this Exhibit 4 may be taken as representative of all commercial machines— 1101 Form 4 machines sold by the company. A. It may be.

Q201. When were these experimental machines with the chain drive made and for what purpose? A. It is my memory that the original drawings were made calling for that type of drive and went into production. We met with some difficulties and we also found that it was more expensive than the conventional rack and pinion.

As to the difference between the chain drive and the rack bar machine insofar as washing ability is concerned, the washing ability de-

pended upon the efficiency of the motive power. The first chain drive machines were not successful washers. They were not what we decided to adopt because of stretching of chains and things of that kind. Its difficulties were mainly confined to the drive mechanism, I believe.

(Sheaf of papers offered in evidence as Defendant's Exhibit 9. Stipulation that the photostat copies of the sheets
1103 may be substituted for the originals.)

Cross Examination by Mr. Lane:

XQ204. You have testified that up to the time the No. 4 model machine was abandoned that the 1900 Company and the Binghamton Washer Company was looking for a modern general principle for washing. What was the general principle? A. I can best describe it by saying that when I came with the company I found that they had worked out a principle of wash-
1104 ing clothes that stood alone in the field in that most of our competitors in the types of machines which we were now talking about—agitator type—used what was known as the dolly type machine or commonly known as the milk stool type of machine which had a block of wood either round or square with several pegs underneath,—pegs of maybe an inch in diameter and three to four inches long. The inside of the tubs were corrugated and this dolly type hung on a spindle or shaft, vertical, and driven by hand or power and washed the clothes by what we the 1900 salesmen described as a torsional method of washing. The pegs were quite sub-

stantial in weight and the block was quite heavy and an attempt was made to sell the public tha' this particular method—that this so-called torsional method or twisting method coupled with the corrugated tubs, simulated as nearly as possible the human hand motions, in the water and soap and served to loosen the dirt in that way. The 1900 advertised principle of washing was that it did not resort to this twisting method but they had developed a principle by which the clothes were slightly rubbed which was easy 1106
on the fabrics—much more so than their competitors and at the same time depended in conjunction with this rubbing method on the action of the water for assisting in turning over the clothes and exposing a greater surface of the clothes or a continuous different surface of the clothes to an agitator. In other words, the clothes were washed by the rubbing pressure of the vanes coupled with the circulation of the water in the tub directed and forced by these vanes.

That was true of all the 1900 devices up to 1107
the time of the single vane agitator which was put out sometime in 1922 or 1923, with the exception of the Cataract machine which was an oscillating type of machine.

XQ206. Then in all those machines you depended upon the rubbing action of the vanes coupled with the movement of the clothes with the water for operation and cleansing? A. I said it was developed with the movement of the clothes and not with the clothes.

XQ207. When was it, Mr. Behan, that 1900 abandoned the sale of the No. 4 machine? A. I would not be able without referring to rec-

ords, to say positively, but I would say the latter part of 1921 or 1922—the early part of 1922.

Perhaps the most exhaustive experimentation we made was on the agitator of the type shown in the Davis Patent No. 1,748,442, before placing it on the market. We made a great many experiments with the object in view of obtaining a machine that could be manufactured at a lower price and to wash quicker and to be
1109 smaller dimensions.

As to whether we had one of the Maytag machines before us during the experimentation, it is our general practice to design individually of our competitors, but it was also our practice to buy competitors' machines which were commercially offered to study their performance. We obtained during 1922, I believe the records will show, a Maytag machine.

The Maytag machine was one on which the agitator was driven from the bottom through a stuffing box which did not reach above the
1110 water level. As near as I can see it represents the structure described in the Snyder Patent No. 1,866,779.

The Doughty machine, being one like that of the Doughty-Davis patent of June 3, 1924, was first put out commercially sometime during the year 1921. The records will give the date.

XQ214. You don't know exactly when the date was, whether 1921 or 1922? A. When we first put that machine out? I cannot recall.

If my memory serves me, we put out the structure of the Davis patent of 1930 with the single va.. agitator in 1922.

XQ216. And did you have in connection with

the development of that machine one of the Maytag machines under test here? A. We had a Maytag machine in here I think in 1922 which was, as I stated before, the custom of the company to get in a competitive machine or machines which were known to the public, to test them.

The Maytag machine which I refer to is the one disclosed in the patent here in suit.

It is a matter of record in our books and I do not recall but I believe it was sometime in 1922 1112
that we first put out commercially the machine of this Davis patent of February 25, 1930. We sold very many of those machines.

XQ220. You abandoned the Model 4 machine in favor of that type of machine, did you not? A. This type machine referred to, superseded the Model 4 in our line.

On direct examination I stated the date we decided to abandon the No. 1 machine that was the word for that machine, and that was generally sometime between 1918 and 1921.

The general theory at the time we made the 1113
No. 1 machine which is Exhibit 2, with corrugations on the inside of the bottom and staves of the tub, was that the corrugations would help the washing action of the machine. It was supposed to give it a slight rubbing action close to the contact side, more than if it were plain.

XQ225. So that you corrugated both the bottom and sides of the tub to add to the rubbing action of the dolly in that type of machine? A. That was the theory we held.

XQ226. Generally during that period of time up until 1921 weren't most of these wooden washing machines equipped with corrugations

on the inside and bottom of the tub, whether they used the dolly type or the rubber type that you refer to, made by 1900? A. It is my general belief that most machines had one or both of the corrugations and that was for the purpose that you stated, generally for rubbing the clothes if the dolly or rubber was used in the machines. That was the accepted theory as I understand it.

XQ227. Now what was the height of the rub-
1115 bers in that No. 1, Exhibit 2, machine? A. Do you mean those which I call vanes?

XQ228. Approximately from the surface to the agitator top. A. About 7/8 of an inch.

XQ229. What was the height of the rubbers or vanes in the No. 4 machine? A. Approximately the same.

XQ230. Now, as I understand it in the construction of that No. 4 machine there was a space between some of the rubbing surfaces or vanes which was equi-distant and a certain space that was wider than the others. Is that
1116 so? A. Yes, sir.

XQ231. How much larger separation was there between any two of the rubbers than there were between the rest? A. Well, I would say that there was one section around the perimeter of the circle which might be represented by the elimination of two of the vanes or more.

XQ232. That is if you had two more vanes supplied on that machine, they would be substantially equi-distant throughout the entire periphery? A. Yes.

XQ233. Has there been a substantial sale since 1921 of these rubber type machines, that is, having vanes on like No. 1 or 4, by the 1900

Corporation? A. More than anyone else. As far as I know, the sales have been very small.

XQ234. Do you know substantially how many machines like that of the No. 1 model, with the corrugated sides and bottom and the rubber and driving mechanism at the top, were sold at the time you were with the 1900 Company? A. Now you talk about Exhibit 2, you mean that one over there? I cannot say exactly about 7000.

XQ235. If I understand you correctly during 1118
1921 before you abandoned the No. 4 machine, you had sold about 700 total? A. I think that would cover approximately the total sales.

XQ236. That was abandoned about when? A. I should say the last of 1921 or 1922, the forepart of 1922.

XQ237. So that the 700 which were sold were sold perhaps within the period of from ten to twelve months? A. Something like that. That is a matter of record I should say.

The advantage of the single vane agitator type of the Davis patent of 1930 over the ma- 1119
chine model 4 which we abandoned was that it had much more volume of water action. The swing of the agitator was greater, the arc which it traveled. It, of course, had more water action and less frictional contact than the other. That is so because the impeller was traveling faster through a greater arc; had more opportunity to act under the head of water due to the farther travel; a smaller machine and the agitator vane was very much higher.

I should say that the single vane agitator runs from the peak, the greatest height to the smallest height, approximately 2½ to 3 inches.

The height of that agitator is five inches. I do not know whether this represented the first models we made or not. We may have made some less than five inches.

The one measured represents one of our latest type washing machines and that is 5" from the base to the top. As to whether that is about the height that we used from the time we first put the single vane agitators out, those figures can be checked for we have com-
1121 plete drawings. I think we probably could send somebody right over now to check them up.

I would say that that machine Model No. 4, Exhibit 4 represents a lot of service. The vanes are worn somewhat, but I should say they would be representative of a machine that had been in service for sometime. The rubbing of the vanes is caused by the contact of the clothes, in my opinion.

I cannot fix the dates for the various experiments that we made on the single vane agitator of the Davis type. That is a matter of record.

1122 The photograph, which has marked on it Exhibits A, B, C, D and E and the washing machine body G, do represent some of the outstanding experiments that were made in arriving at the single vane construction. All of those structures had vanes or agitators of substantial height for forcing the water rapidly in the tub as compared with the previous models, Forms 1 and 4. We did not put out commercially any other agitators shown on this photograph except the kind like Exhibit E. The agitator marked "E" on this photograph has the single vane agitator which we have sold in large quantities since 1922.

Our principal production at the present time is the triple vane agitator with the high center post with high vanes equi-distantly spaced. We have been selling that machine I should say for four or five years.

Photograph about which the witness testified offered and received in evidence as Plaintiff's Cross-Exhibit 1 (Tr. Ex. 55).

Referring to the tracing dated November 24th, 1922, it shows one of the agitators of the single vane type like that shown in the Davis 1124
patent of 1930, to be four and five-eighths inches high, and the height of the agitator which I measured was five inches or a little under five inches.

All of the machines of the Davis type of its patent of 1917 that we made are represented substantially by Model 1, Exhibit 2.

XQ266. All of those machines had the corrugated sides and bottom to the tub and over them had vanes or rubbers of about seven-eighths inches in height? A. Yes, sir.

All of the seven hundred machines of the No. 1125
4 model, Exhibit 4, had vanes approximately seven-eighths inches in height. I cannot say whether they all had corrugated bands extending circumferentially. Some may have been plain. I cannot recall that I know of any that were actually sold plain. The first model was made of plain material but I cannot recall whether any of the subsequent were so made.

Referring to Exhibit E (Tr. Ex. 55), the height of the vane measured 1½" from the rim we have approximately 5". From our measurements it would appear that it was from 4½" to 5" and the vane that we have been measuring

is substantially the same vane as marked No. 13 in the Davis patent of February 25, 1930.

We got complaints about the Exhibit 2 machine, No. 1, Form 1 machine, from our Commercial Department through customers. The general complaints that I mentioned in my direct examination came from customers through our sales organization. We had complaints as to the Form 4 machine; many complaints were incidental to a new machine; these perhaps be-
1127 ing traced to carelessness in the factory in shipments, lack of proper demonstrations, etc. I would not say that these complaints had anything to do with our discontinuing the type of machine. The main reason why we discontinued the machine was on account of business conditions and the necessity of meeting competition. The machine was large and expensive and we were unable to obtain the volume. That was the main reason for our going to the smaller machine with the single vane agitator type.

XQ284. What name was the model 4 known as
1128 in the trade? Did you have a name for that? A. Any objection? Originally we called it Model 4 and later Whirlpool.

XQ285. Did you later adopt the name Whirlpool for the single vane agitator? A. We did that when we bought the copyright of that name.

XQ286. I notice one of the records refers to Whirlpool machine and that meant in the records they were handled under the Model 4, whereas later it meant the single vane agitator type? A. We intended to couple the name Whirlpool with Cataract which was our outstanding machine at the time we suddenly discovered that somebody else owned the right to

Whirlpool. We negotiated and purchased it and in the interim we called it the Model 4.

XQ287. But the real commercial machines sold by the 1900 under the name Whirlpool, was of the single vane, or the three vane type that you have talked about? A. No. The real commercial product that the trade would recognize is that the Whirlpool is the single vane machine which was made under the so-called Davis patent of February 26, 1930.

These high vane agitators, those with vanes 1130
from 4½" to 5", were first popularized in 1922. Up to that time it is my best knowledge and belief that nobody ever made that but the 1900, or thereafter. I have no knowledge of the Maytag sales but they advertised the four vane type of agitator extensively at that time.

It was our practice to follow advertisements, and on information obtained from our salesmen, to purchase machines that were competitive on the market and new.

The Maytag machine was on the market when we purchased it. 1131

In the Model 1, Exhibit 2, machine, the agitator and shaft as a whole move up and down through the bearing of the cover, and the thing that did the washing moved up and down relative to the cover.

XQ297. You say it was moved up and down relative to the clothes and water? A. Yes, sir.

XQ298. You testified on direct examination that in 1918 it was recognized that the No. 1 machine was to be abandoned. How was that arrived at at that time? A. I don't recall that I said in 1918 it was recognized to be abandoned.

XQ299. When was that? A. In 1919 it was recognized.

XQ300. How did that happen to come about that you recognized that? A. The protest on the part of our salesmen and others that it was not up to date with our competitors.

The Cataract machine was built in a frame which imparted a peculiar motion best represented by tracing the outline of a figure 8. The mechanical action imparted a motion to the tub
1133 such that the water and clothes were thrown around, following as near as you can describe it, the outer rim of a figure eight. That is, the movement of the tub was such that it caused the clothes and water to travel in a path that was best represented by the rim of a figure eight.

The bottom was made of steps or corrugations and the theory was that the clothes being tossed out against the outer rim, the tub being made in a rather peculiar oval or elliptical shape, the clothes were tossed out around the
1134 rim and rubbed around through the bottom and the sides and the turnover in this figure eight side exposed a great surface of the clothes to the water.

I would not want to say without consulting the Cost Department what the cost of the Model 4 was as compared with the later models, but it was much more costly, it was a very much larger machine.

The Whirlpool single vane agitator made by the 1900 Company was operated by a motor running at a synchronized speed of 1800 revolutions per minute and the gear ratios are such that the shaft of the agitator is operated at 60

revolutions per minute. It means that the vertical shaft, if it was operated in a true circular motion, would go 60 times in a minute. In the hand powered machines, the motive power being an operator, the speed would depend on how fast he pulls it around. I would say possibly a standard speed of 20 revolutions per minute was intended.

As I recall the No. 1 type of machine like Exhibit 2, operated around 40 to 60.

All the machines manufactured by the 1900 1136
Company had the action of both rubbing and water action. I don't recall when my attention was first attracted to them, but I would say at least 20 to 25 years ago.

As to whether any of the early machines had a rubbing mechanism at the bottom substantially of the type of Defendant's Exhibit 2 and the clothes washed between these two mechanisms, I would say that some of the original machines of the 1900 Company had an agitator with vanes on the bottom, and also with serrations and vanes on the bottom of the tub. 1137

XQ322. In the early machines which you say you were familiar with when you went with the 1900 Company while you were with the General Electric Company, did the 1900 Company or its predecessor, the Binghamton Washing Machine Company, have a machine which had a rubbing mechanism, a disc with vanes on it at the bottom of the tub and also a similar device at the top of the tub with the clothes placed between them so, when the machine was operated, the clothes were rubbed between these two mechanisms? A. Such a machine was manufactured.

XQ323. Were the vanes substantially the same

height and character of these in the No. 2 machine on both the rubbing mechanisms at the bottom and at the top? A. As I recall the dimensions, yes.

XQ324. And about the same shape? A. Yes.

XQ325. And about the same arrangement circumferentially on the discs, were they not? A. Yes, sir.

The picture on the circular entitled "1900 Cataract" is a sectional view of the tub. That
1139 shows the way in which the clothes are supposed to be forced about the interior of the tub. It shows the rubbing corrugations at the bottom of the tub. The theory is that the action takes place as the clothes are rubbed over the corrugations at the bottom as the tub is operated.

That machine was put out by the 1900 Company before my employment, but as I recall it, it was developed in 1915. We started to discontinue it approximately in 1923 or 1924. It was sold up until about that time contemporaneously with other machines.

1140 XQ333. And then abandoned when? A. I don't know as it is abandoned yet.

XQ334. Largely abandoned? A. About 23 or 4 as I recall.

(Circular offered in evidence Plaintiff's Cross-Exhibit No. 2 [Tr. Ex. 56].)

Re-direct Examination by Mr. Free:

I would have to refer you to the record to tell for how long the Form 1 machine, Defendant's Exhibit 2, was sold by the 1900 Company or its predecessor. As my memory serves me, it

was put out, I think, in 1914 and produced in quite volumes until perhaps 1919 and began to decline thereabouts.

RDQ337. In the form in which you see it now? A. Substantially.

RDQ338. What do you mean substantially? A. There might have been different methods of case-hardening the gears or changing the mechanism here and there to overcome operating defects or efficiency or changed practice in production methods. 1142

RDQ339. I mean physical changes? A. I don't recall of any physical changes. There might have been a change in the material of the tub. They might have put out a few, changing from wood to copper.

RDQ340. You call this machine Exhibit 2 Form 1? A. Yes, sir.

RDQ341. What was Form 2? A. I don't recall now.

RDQ342. What was the difference between them? A. I don't recall. I can refer to our records and determine exactly. 1143

RDQ343. Don't you recall that Form 2 or the machine following Form 1 was put out with a different form of tub? A. Since these are a matter of record, company record, I do not carry the details in my mind to correspond to the change in the nomenclature.

RDQ344. I show you a photograph of a washing machine and ask you if you recognize it, and if you do, to describe it and explain it. A. I recognize the machine as one manufactured by the 1900 Corporation, and since it is labeled, it was apparently our Form 2 Agitator Electric Washer.

RDQ345. Referring to Form 1, Defendant's Exhibit 2, state how that machine in the photograph differs from Exhibit 2? A. From my observation of the photograph, and not the drawings, I would say only in the tub.

RDQ346. Describe the tub as you see it, or if you recall the construction of the tub, describe that in greater detail. A. A copper tub apparently without any corrugations or serrations of any kind. However, what is on the bottom of the
1145 tub I can't tell from the photograph.

RDQ347. You say that machine was manufactured by the 1900 Company during what period? A. I don't recall.

RDQ348. Please look at the tub standing on the platform of the rough model identified as Defendant's Exhibit 8, and compare it with the tub shown in the photograph? A. The general appearance of the tub is the same.

RDQ349. Is it, as a matter of fact, the same form of tub as used on the model in the photograph? A. I don't know. I can't tell from the
1146 photograph what inside appearance the tub had.

RDQ350. During what period was the machine in the photograph sold following the sale of Form 1 Defendant's Exhibit 2? A. They were, as I recall it, sold contemporaneously.

RDQ351. When did you stop selling Form 1 Exhibit 2? A. I can't assign any line of demarcation. It began to be superseded in the year 1921 and 2.

RDQ352. You spoke of abandoning Form 1? A. I used that word in a general term as the abandonment of a unit out of the line may run over a period of several years.

I came with the 1900 Company in the Fall

2803

of 1918 and I do not recall whether Form 2 was on sale at that time. I am sure that Form 1 was on sale. Form 2 was sold later. I don't know how much later, I would have to look it up, it is a matter of record. My recollection is that Form 2 was added to the line at a more expensive price to the trade, due to the demand for a copper tub. I cannot recall just when that was. Aside from the difference in the tub, I do not recall any difference to any great extent in Form 1 and Form 2. There might have been some difference in the wringer. Referring to the photograph, I observe no great difference except the copper tub and the iron legs. 1148

Referring to Form 1, Defendant's Exhibit 2, the agitator is free to assume any position that the resistance below it will allow it to assume, it being loose on the shaft. Assuming you have a normal load of water and a normal load of clothes in the tub, the agitator rides on the clothes and the water. The position of the agitator varies as the water and clothes rise and fall. As the turbulency of the clothes, turning over, as that rises and falls, the agitator rises and falls with it with relation to the bottom of the tub or the clothes or water. The oscillation of the agitator carrying the vanes underneath causes the turbulence of the water. 1149

As to the speed or oscillations per minute of the agitator of Form 1, Exhibit 2, since it is driven by an induction motor, the speed is substantially fixed. The oscillations per minute of the agitator equals whatever the ratio is from the pulley speed of the motor down to the speed of the shaft carrying the agitator. It varies, I think, from 40 to 60 revolutions. I don't know

what it is in this particular machine, Exhibit 2. I don't recall. The records and drawings will show it. By 40 to 60 revolutions per minute I mean that the thing swings this way 60 times, no it means it swings this way whatever the speed of the shaft is and swings that way whatever the speed of the shaft is, so it would oscillate 60 times, if it were 60, one way and 60 times the other way.

1151 Q. As I understand it, you mean 40 to 60 oscillations to one side and 40 to 60 the other, making 80 to 120? A. It means the shaft starts if the ratio is 60, the shaft starts to move at the rate fixed by the motor, an induction motor, which has a constant speed and travels the arc of a circle at the rate of 60 revolutions per minute, is arrested, and starts at the rate of 60 revolutions the other way, is arrested and repeats that operation. I can't explain it any clearer than that.

1152 Referring to the single vane agitator which the 1900 is manufacturing now, the rate of oscillation in that machine, we refer to as 60 revolutions per minute. By that I mean it starts at the rate of 60 revolutions, is arrested and starts the other way at 60 revolutions. The single vane agitator has a much faster speed than the agitator of Form 1, Exhibit 2. As I said, the Form 1 was from 40 to 60, while the single vane is 60.

Q. That 60 oscillations per minute, which is what I understand Form 1 will do, how much slower is it than the oscillations per minute of the single vane agitator? A. They both were driven by an induction motor which had a synchronous speed of 1800 and at the same ratio of

reduction they would travel at the same speed. If it were determined at 60, they would travel at 60.

I spoke of the single vane agitator as doing revolutions and the agitator of Form 1 doing oscillations with reciprocation. I don't mean to make a distinction or difference. There is no difference. It is an error in description. They both act the same. Both oscillate under the same conditions at the same rate of speed. As they were both made, they would both operate that way, 1154
both Form 1 and the single vane agitator, if the ratio of reductions were the same. I think they were not the same. The single vane had a ratio which gave it a higher speed.

Q. You just told me they both operated the same. What do you mean by that, that is what I am getting at? A. It is my understanding that under the same conditions they would operate the same in speed. I don't recall that I did say they did operate at the same speed.

I can't recall what the difference in speed of oscillation of the Form 1 agitator and the single 1155
vane agitator actually was as these machines were made by the 1900 Company. I would have to look up the engineering records. I wouldn't want to hazard an opinion, without referring to the engineering records. It is a matter of record and I don't carry the exact ratios in my mind. The single vane operated at a higher rate of speed, as I recall it. I don't recall how much faster the single vane agitator oscillated than the No. 1 agitator. It is a matter of engineering record.

(Witness produced the agitator identified on the photograph of Plaintiff's

Cross-Exhibit 1 [Tr. Ex. 55] with the letter C.)

The height of the vanes of the agitator marked C is 2⅛ inches. There are three vanes. The disc is about 14 inches approximately in diameter.

The 1900 Company is a licensee under the Snyder patent 1,866,779.

The Maytag Company is a licensee under the Davis patent 1,748,442 owned by the 1900 Com-

1157 pany.

While I was an officer of the 1900 Company I participated in the negotiations for the licenses under these two patents.

I am testifying here under subpoena.

Re-cross Examination by Mr. Lane:

Before the subpoena was handed me, I was consulted by defendant's counsel and gave them free access to our books. I told them substantially all that I have told them on the witness

1158 stand prior to the time I was subpoenaed. The defendants had this information which I gave them several weeks ago, and at all times our records were furnished freely to them without restraint.

Referring to the cuts on the illustration of agitator mechanism, Plaintiff's Cross-Exhibit 1 (Tr. Ex. 55) we have never used any device there shown commercially except the one marked E exactly as there shown. I can't recall for how long a time we were experimenting with one form or another of these agitators shown on this Exhibit of various kinds before we finally arrived at the Form E which is the single vane

agitator which we later put on the market. We did a lot of experimental work before we finally arrived at Form E. That work was done in the model room, a great deal of it under my supervision.

It was all developed with no knowledge of the Maytag machine at the time. I don't know whether we had the Maytag machine before we arrived at a final decision.

Form 2, as I recall, was a wooden tub machine. It wasn't a copper tub machine at all. It 1160
had a different form of metal legs, but the tub construction was identical with Form 1. As I recall. It is shown very clearly in the engineering drawings and specifications which are on file. I notice on this Exhibit handed me, right opposite the picture in which I was asked to describe Form 2 and which I think brought about some confusion in my examination, it states "agitator electric Form 2" and says this machine is similar in construction to the machine on page 7, and page 7 shows a wooden tub machine. And below that it says "instead of wood 1161
legs it has metal base and legs and can be equipped with a detachable metal stand for clothes basket and extra tub." I tried to make it clear in my testimony I didn't carry in my mind the different forms. That is purely a matter of engineering record and these are on file. My best knowledge is that Form 1 is as it is described in that Exhibit. Form 2, as I recall it, had a wooden tub with a band around the bottom, a steel band and pipe legs. Form 3 was substantially the same as Form 2 except it had a copper tub. However, that can be verified by reference to the drawings. The interior con-

struction of Form 2, the wooden tub, was the same as the exterior construction of Form 1, which is this Exhibit, as I recall it.

RXQ425. Form 3 had an agitator with rubbing surfaces at the top of the tub? A. Yes, sir.

RXQ426. As I understand it, this had a corrugated bottom also? A. Yes.

Mr. Edmonds: What are you speaking about?

1163 Mr. Lane: Form 3.

A. Form 3 had, yes.

Mr. Edmonds: Form 3 had a corrugated bottom?

A. Yes, it had corrugations as Exhibit 8 as I recall.

RXQ427. Now, in respect to these oscillations, let's get this thing clear. In the Form 2 machine, the rubber device at the top moved, as I understand it, at a slower rate of speed relative to the circumference of the tub, than did the device with the single vane agitator. A. Yes.

1164

The form 2 machine agitator moved 40 times that way and 40 times the other way in a minute. Assuming that Form 1 was operated at 40 revolutions, that meant to me that the rubbing agitator moved 40 times in one direction and 40 times in the other direction per minute. In the Form with the single vane agitator, assuming that speed the single vane agitator moved 60 times in one direction and 60 times in the opposite direction per minute.

The purpose of rotating the single vane agi-

tator at a higher rate of speed than the other tub was an attempt to get more water action. We did, in result, get very substantially more. We arrived at that conclusion as the result of a very large number of experiments.

Re-direct Examination by Mr. Free:

It is my best judgment, without referring to the record, which if you care to check the machines are right here, that the machine Form 1 1166
has reciprocations at the rate of 40 and that the single vane had reciprocations at the rate of 60 per minute.

I would say that the tub of Exhibit 8 is not representative of the tubs used on the Form 3 machine. As I recall, without referring to the records, Form 3 had circular corrugations rolled around the tub as indicated in that Form 3 machine. I would say that the photograph of the 1900 washing machine handed me represents Form 2. That has a copper tub. I cannot say what kind of walls the tub has. Externally they 1167
are smooth. The walls of the tub are made of copper, possibly 16 ounce or perhaps 18 ounce. It is fairly thin sheet copper.

RDQ449. In this circular from which Mr. Lane read, it is stated that Form 2 is similar in construction to the machine shown on page 7 and instead of wood legs, it has a metal base and legs and can be equipped with detachable metal stand for clothes basket and extra tub. Please refer to this circular and describe the difference between Form 2 as described and Form 1 as shown on page 7 of the circular? A. I repeat my former description I just made.

1168 *Thomas W. Behan—For Defendant—Re-cross.*

RDQ450. In that former description you told Mr. Lane that Form 2 had a wooden tub? A. I corrected that.

RDQ451. Now, you say a metal tub. Which is right? A. I made the correction I believe.

RDQ452. What was the correction? What is Form 3, a metal tub or wooden tub? A. In my correction I said I was confused in the nomenclature. Form 3 was metal, at least some of Form 3 was, as I recall it, they were all metal
1169 tubs. However, we can refer to the drawings and determine the specifications.

RDQ453. Did all Form 3's have metal tubs and all of Form 2 have wooden tubs? A. I can't recall without referring to the engineering department specifications.

RDQ454. Now, refer to that photograph which you have had in your hand. Does that show the Form 2 tub or Form 3? A. I wouldn't want to say. The records will show it very clearly in our Engineering Department.

I discussed the case in a general way with Mr.
1170 Lane as I did with you previously. I don't think I saw Mr. Lane yesterday but I discussed it with him before I was subpoenaed, in a general way, but not in as much detail as I discussed it with you.

Re-cross Examination by Mr. Lane:

When I called on Mr. Lane in Chicago, I spent about five minutes in his office a week or so ago, and the conference was limited solely as to when he was going to be free to attend this deposition. Mr. Lane asked me if I had given the other side full information concerning all the work

1171

done by the 1900 Company and I told him Mr. Clark's suggestion to me was to be sure that defendant was not restricted in any way in having all the information, and we in turn gave Mr. Clark, our attorney, all this information. He also advised me to give freely to the other side all information.

Re-direct Examination by Mr. Free:

1172

I don't know where you got the sketch, Defendant's Exhibit 7. I remember you asked so many things for me to get I can't recall, but everything that you asked me to get, I told you I would get immediately.

Re-cross Examination by Mr. Lane:

I gave Mrs. Clark everything and I understand he turned over such information to both you and Mr. Edmond's office. There was never a refusal of information to either side.

1173

(Defendant's Exhibit 10, being a photostatic copy of the photograph referred to as the Form 3 machine, and also the circular referred to at the same time, offered in evidence. Stipulated and agreed that said photographs be accepted in evidence in lieu of the original and received in evidence with the same force and effect as the original.)

1174 *George L. Davis—For Defendant—Direct.*

Deposition of GEORGE L. DAVIS, who testified in behalf of the defendant—Taken at Binghamton, N. Y., January 25, 1934.

Direct Examination by Mr. Edmonds:

I live in Binghamton and am in the employ of the 1900 Company as a superintendent. I have been in their employ since 1913 as superintendent in charge of production.

1175 I recognize the machine Form 1, Exhibit 2. The company manufactured that machine for two or three years and other similar models were manufactured. They were designated as Form 1, 2 and 3, I believe.

If Exhibit 2 is a wooden tub machine, that is Form 1. I believe that Form 2 had, instead of wooden legs, metal legs. I believe the tub was the same as Form 1. Form 3 had metal legs and metal tub, otherwise I think it was about the same as Form 2. I don't recall any difference in the legs in Forms 2 and 3, nor do I re-

1176 call any difference other than the metal tub instead of the wooden tub.

I believe that the tub in Exhibit 8 is about the same general makeup as the tub in Form 3 machines. I can't say that I recall any difference. The cylindrical wall of the tub of Exhibit 8 is smooth, and I believe that was true of the tubs used on the model 3 machines at the start. It might have been changed later. Possibly they put circular beads such as appear on the tub Exhibit 4, Form 4. The ribs or vanes on the bottom of the tub of Exhibit 8 would naturally have some effect to perhaps stiffen the tub bottom.

I recall Mr. Doughty as an employee of the company. To the best of my recollection he joined the company about 1919. I believe one of his first efforts was on an ironing machine.

I cannot state as to when the base or frame on Exhibit 8 was made, but it had been in our experimental department for quite a number of years, and it had a number of different experiments conducted on it.

Q35. Did Mr. Doughty have anything to do with making that? A. He might have. 1178

I recognize the machine before me, Form 4, Exhibit 4. I believe it was brought out some time in 1921 or 1922. It was about in the same state when I first saw it as it is now.

Q39. You will notice on this Exhibit 4 the part within the tub which is to be oscillated by power has a number of vanes equally spaced except at one point. When you first saw this reciprocatory part, was it in that condition or did it have vanes equally spaced all around? A. I don't believe I can answer that.

Q40. State whether or not you made any suggestions as to the construction of the Exhibit 4 machine during the course of its development? 1179
A. I think probably I did.

Q41. Do you recall any specific suggestions you made? A. I am unable to recall anything specifically.

Q42. Did you have anything whatever to do with the fact that the oscillatory part in the tub of Exhibit 4 has the vanes to which I called your attention unsymmetrically placed on it? A. I can't recall that.

I am unable to recall the blueprint which is the last sheet of Exhibit 9. I might have seen

it. The blueprint has a date, March 22, 1921, but I cannot recall having seen the blueprint about that time. I can recall seeing a machine of about that construction, but I can't place it as being at that time necessarily. I might have seen the machine sometime during 1921. The construction of the base shown in the drawing is very similar to that in the model, Exhibit 8. The mechanism below the base, however, appears to be entirely different. I am unable to
1181 recall anything concerning this particular test referred to in the two sheets dated February 8, 1921, in Exhibit 9. It is common for us to run such tests. I expect that we did conduct tests during the development of the Form 4 machine. Such tests were more or less customarily handed by the engineering department.

The company made machines which were designated Form 4. Those were made by the company under my superintendance. I don't recall anything in particular between the making of this one machine which I saw sometime in
1182 1921 and the start of commercial production other than the usual process of refinement, the patterns, castings and things of that kind.

I cannot recall anything more with respect to events in connection with the Form 4 machine prior to the commencement of commercial production than I already told you. I believe tests were made and the results were followed. These results probably led in part to entering upon production.

I believe that the drawing in Exhibit 9 is a drawing produced by the 1900 Company. I have no reason to question the date of that drawing.

1183

I am not able to answer whether or not a machine such as is illustrated in that blueprint was in existence prior to the time the blueprint was made. When these Form 4 machines were produced the work of producing them was under my supervision and I recall that Form 4 machines were produced. I would estimate that it was in production a matter of one to two years. It is a matter of record how many were produced. I believe it is seven hundred and some odd.

1184

Q75. When production started, do you recall what number of the Form 4 machines was put through first? You usually make such machines in groups, do you not? A. Yes, to your last question.

Q76. Can you give us any answer as to what number was made? A. From our records I would say the first serial number applied was probably one thousand and something.

Q77. When commercial production was started on the machine, was it given a serial number? A. I believe it was.

1185

In this process of numbering machines made for commercial production, the serial number probably started at about one thousand for the Form 4 machine. The serial number of machine Exhibit No. 4 is 1033. I believe that the Exhibit 4 machine is representative of the Form 4 line. Inside of that tub there is a member or disc like form which is reciprocated by the motor below and the mechanism actuated by the motor. In that exhibit, I believe we have a worm driven by the motor which in turn drives the gear, the gear shaft driving a crank and then through either a rack and pinion or another

form of what I call a connecting rod model with a chain and drum. I don't know exactly what is in this model.

In the manufacture of these Form 4 machines we had different versions of the rack and connecting rod. I cannot recall exactly when and where they were applied. We would not use the chain with the rack. These two were alternate forms of driving mechanism. I believe some were used in some machines and the other in
1187 others.

The chain actuating the mechanism to which I refer, is illustrated in Figures 3 and 4 of patent No. 1,496,305, Exhibit 5. It is my recollection we used some of these. It may have happened that we made a change in the driving mechanism to one which did not employ such a chain. I don't know that we actually did.

Probably working drawings were made by the 1900 Company prior to the beginning of commercial production of the Form 4 machine. It is customary to have working drawings before plac-
1188 ing a model of the machine in production. It is my recollection that such drawings were made before starting the construction of the Form 4 machine. As to whether I know that a complete set of drawings were made, I believe the company did that and that should be a matter of record. I would say that we made changes pretty rapidly in new designs. My recollection is that drawings were made sometime in 1921 prior to the commencement of production. I believe production commenced in that same year. That is a matter of record.

In addition to calling that machine the Form 4, it might have been called the Whirlpool.

1189

The book before me is a record book kept by the plant of serial numbers of machines produced. It is commonly called the tally book of the 1900 Company. This particular book has been serving as a record since the dates that appear in it. The first date I see here is December 28, 1921. I am quite familiar with the book. I probably have had occasion to refer to it from time to time during the past 15 years. I have seen the book occasionally, and I have always treated it as a record of the company. The open- 1190
ing pages of the tally book records machine bearing serial number 1000, December 28, 1921. The first few pages of this book lists generally serial numbers from 1000 on up. I believe this is on Form 4, Exhibit 4, machine. Exhibit 4 bears number 1033 and the book shows it was shipped on January 18, 1922. By reference to the book I am able to say that the serial numbering on these Form 4 machines began at number 1000. Number 1000 was shipped on December 28, 1921. Other machines between 1000 and 1033 were shipped between December 28, 1921, and Jan- 1191
uary 18, 1922, and other machines were shipped after the latter date. I believe the date with respect to each machine bearing serial number from 1000 up is shown. The date of shipments of machines numbered 1001 and 1002 is October 8, 1921. A pencil note indicates that they were shipped to our dealer named Holmes. There are other shipments recorded in October, November and December of 1921.

Q132. Now, in each of these instances to which you have referred in this tally book, the date appears recorded with a rubber stamp following the serial number of the machine which appears

to have been recorded with a numbering machine. In some instances there is a second date also applied with a rubber stamp on the same line with the first date and directly to the right of it. What do these second dates indicate? A. I am not just certain as to the reason for these second dates, unless perhaps the return of the machine.

Q133. This book is the book of record of dates of shipment, is it not? A. Yes, I believe so.

1193 I find shipments of these Form 4 machines recorded throughout the months of 1922. The machine No. 1811 and machine No. 1827 were shipped October 12, 1923, and October 30, 1923. There were other shipments in February, July, March, June, September, April and so forth in 1923.

(Tally Book offered in evidence with agreement that photostatic copies of certain pages may be used.)

1194 I believe that all the entries on pages 1 to 14 inclusive refer to machines of the type known as Form 4 and sometimes referred to as Whirlpool.

Q141. When you have referred to that tally book, as you stated you have, and particularly when you refer to any entry on pages 1 to 14 inclusive, you treated the entry to which you referred as an entry applying to Form 4 machines? A. Yes.

(Photostatic copies of pages 1 to 14 offered in evidence as Defendant's Exhibit 11.)

1195

I have stated that these dates represent ship-
ing dates. It may have been shipping dates or
roduction dates. I cannot say which. I believe
e have treated them more largely as produc-
on dates. Second dates may be shipment dates
) far as I know. The machine might have been
)mpleted and shipped on the same date. I have
ad very little ccasion to refer to the book. When
did it was in an effort to determine about the
eriod at which the machine was built. I ac-
pted the date which I found in the book as in- 1196
icating the date of production.

ross Examination by Mr. Lane:

As I recall the ribs on the No. 4 machine were
vel around the tub, I couldn't state that was
ear. I believe they show some wear caused by
ntact by the clothes or whatever was washed.
believe it is in the record when the company
)andoned the Form 4 machine. It is my recol-
ction it was about 1923. The tally book, pages
to 14, shows the latest date of shipments or 1197
roduction that was made so far as I know. Dur-
g the latter part of the period, that is during
23, the production was petering out with the
tention of abandoning it. I cannot recall the
finite period when Form 1 was abandoned. I
) not have any recollection of whether or not
)rm 1 was continued while Form 4 was used.
here were various reasons for abandoning
)rm 1. I believe one was the fact that it was
p heavy because of all the mechanism at the
p of the tub and it did not make as good an
)pearance. I believe the ribs on the disc en-
ged the clothes to a certain degree for the pur-

pose of rubbing them lightly. I believe that was part of the washing action.

I believe the intended operation was the ribs would circulate the water through the clothes and as the water circulated and turned the clothes around they would be lightly rubbed.

XQ182. By the rubbers on the disc at the top of the tub? A. Yes, sir.

I believe the same general principle of washing action applied in both Forms 1 and 4. I
1199 don't believe the corrugations in the bottom of the Exhibit 8 machine engage the clothes to any great extent. I believe the clothes in circulating around through the water would, no doubt, rub the bottom some, and rub the corrugations on the bottom some.

I believe there were 40 oscillations per minute in the Form 4 machine. I mean by that 40 complete cycles forward and back. I believe Form 1 operated at the same number of cycles.

I believe that ¾ths to ⅞ths of an inch would represent the height of these ribs in all of the
1200 machines. I believe Form 4 had the same size ribs. I believe there was a little increased efficiency in cleaning clothes claimed for the Form 4 over the older model. That might be because of the agitating device at the bottom instead of at the top. I didn't make any test to determine that but there were tests conducted. I don't personally have any records to show it. The main advantage of Number 4 over Number 1 was the fact the machine possessed more stability and it was a better looking device.

XQ203. That is the main difference in the operation of the two machines. A. I don't know.

There are a great many differences between the two machines.

XQ204. But so far as the fundamentals of operation were concerned they were the same substantially? A. The fundamentals, I believe, was roughly the same.

I believe the unsymmetrical arrangement of the ribs was created to set up irregular currents in the washing machine tub. It would perhaps tend to prevent the clothes catching on the ribs as they passed over them.

Redirect Examination by Mr. Edmonds:

The diameter of the disc of Exhibit 4 is approximately 23 inches. The diameter of the single vane model, item E on Plaintiff's Cross-Exhibit 1 (Tr. Ex. 55) is approximately 16 inches.

Referring to Form 1 machine, Exhibit 2, there is a centrifugal water action set up which is outward primarily, downward, across the bottom and back up in the center. It is outward on the upper surface of the body of water, adjacent to the rotary oscillatory member and beneath it. The downward motion takes place at the tub sides and then the inward motion across the tub bottom and I believe the upward motion approximately through the center. I believe that that motion is maintained to a degree in the operation of the machine.

RDQ221. I will ask you to read the portion of your patent No. 1,240,826 beginning with line 97 and state whether what you describe there or what you attempted to describe there and what you think you did describe this water action to be is the water action to which you have just re-

ferred? A. I would say the patent reads on that point very much as I described it.

In the Model 4 machine, I believe approximately the same currents would be created in the water as in the earlier model just described. The outward movement of the water would occur towards the bottom of the tub adjacent probably to the upper side of the oscillating part. The direction of the water movement out adjacent to the cylindrical wall of the tub would
1205 be largely upward. The inward movement would take place in the upper portion of the liquid contents, and the downward movement in the center of the contents approximately.

I am unable to recall any particular tests in connection with the decision to space the vanes on the oscillatory member of the Form 4 machine irregularly or unsymmetrically, but I believe there was an effort to improve the efficiency of the agitating device by setting up some irregular currents in this centrifugal action. If my memory serves me right, the pur-
1206 pose was to do a better job of circulating the clothes which are necessarily in this body of water. I believe the object of setting up these irregular currents was to prevent the clothes remaining on the upper surface of the oscillatory member at any point in the center outward. I don't know whether there was any tendency for the clothes to settle towards the outer diameter, but I believe they had the ability to remain on that surface, being influenced by the downward current of water at the center. When that downward flow gets down adjacent to the vanes, it commences to rotate or throw out centrifugally in all directions but more notice-

ably in one direction. When I say more noticeably in one direction I mean in a machine having unsymmetrical vanes. With unsymmetrically spaced vanes, I believe the current would be thrown somewhat off center. I believe that was done to prevent the clothes from remaining in more or less intimate contact with the upper surface of the agitating disc.

Plaintiff's Cross-Exhibit 1 (Tr. Ex. 55), item "C," was mounted and driven in an oscillatory manner. There probably was water in the tub 1208
when I saw it. I believe the action would be outward in the neighborhood of the bottom of the tub, upward along the sides, inward across the top and downward through approximately the center. I believe that that flow of water would be maintained continuously except by the addition of an excess of clothes. Comparatively few clothes added would, no doubt, go through that same path that the water does. I believe that would be greatly slowed down as more clothing was added until you might reach a point where there would be no circulation. I believe the 1209
same thing would hold true of the Model 4 Exhibit 4 machine.

We build a machine now where there is an oscillatory rotary member driven by power through the bottom of the tub and this oscillatory member including vanes. I am more or less familiar with the operation.

RDQ255. In these machines, is the water action such as you have described? If it is different, state what it is. A. That question is not quite clear to me. We have two types of agitating devices, in which I believe the results are not identical.

RDQ256. How do you characterize the two types? A. The under water single vane agitating device and the under water multi-vane.

RDQ257. Will you answer the question with respect only to the one you call the multi-vane? A. I believe it is relatively the same in the multi-vane present day type, but perhaps the downward central flow is different.

RDQ258. Is that by reason of the extension of this multi-vane agitator upwardly to a point
1211 above the surface of the water? A. That is my reason for believing there might be some difference.

RDQ259. Except for the difference brought about in that way, is the water action what you have described in connection with other devices we have spoken of, namely outwardly near the bottom and upward, inwardly and downwardly? A. I believe that it is relatively that way.

RDQ260. Where does the downward flow occur? A. You are now speaking of the present day high post type.

1212 RDQ261. The multi-vane present type machine. A. I believe the downward flow probably still obtains somewhere near the center, but because of this upward extending portion of the vane which carries the blades part or all the way up, that downward flow is influenced in some manner different from machines without the center post.

I am testifying here in response to a subpoena.

RDQ266. This paper I now hand you is a circular of the 1900 Company illustrating the construction of the machine to which you have been referring in the last few answers, namely the

so-called multi-vane machine made by 1900 Company for some years past, some three or four years or more past, the agitator being shown in a detached view between the legs of the machine and this agitator being oscillated through a wide angle by a motor underneath the tub of the machine and connected to the agitator by a shaft coming up through the bottom of the tub, is that correct? A. That is correct I believe.

1214

(Circular offered in evidence as Defendant's Exhibit 12.)

Re-cross Examination by Mr. Lane:

On the commercial machine to which my attention has just been called, the height of the vanes is approximately three inches, and I believe the rate of oscillation is approximately sixty. With that rate of oscillation and that height of propeller quite a violent agitation is created. My belief is there is a very vigorous 1215
stir created, particularly towards the bottom of the tub. I believe the agitation which is created by this agitator takes place as heretofore described and if there are clothes in the water, they are circulated with it.

RXQ274. And are washed by that action, isn't that so? A. I believe they are washed by several actions.

RXQ275. You get a very different agitation of the water with this type of machine than you did with the old type where you rotated or where you oscillated at forty revolutions per minute and had vanes 7/8ths of an inch high,

didn't you, so far as violent action of water is concerned? A. I believe it is different in that the present day machines create a greater amount of agitation than the earlier machines.

RXQ276. Now, in the present machines, you have a churning action, do you not, in the water, by the violent movement of the large vane back and forth through it? A. I don't believe that the action of the water can be described in that exact manner, at least by myself.

1217 RXQ277. It is a churning action, isn't it? A. (No answer).

RXQ278. All the way back and forth through the water at the rate of 40 or 50 oscillations per minute? A. It might be termed a churning action.

RXQ279. Wouldn't that fairly describe it? A. I said that there was a whipping action on the part of the agitator, the blades drawing the water out from the center.

RXQ280. Whipping them violently to cause these flows of current outward and upward, in-

1218 ward and down through the center? A. That is right.

RXQ281. In your patent issued to you in 1917, you said in line 28 of page 1 that the further object of your invention is to provide means in connection with the agitator disc to prevent churning of the washing fluid, did you not? That was the purpose of that machine, was it not? A. That is one of—

RXQ282. The purposes? A. The purposes.

RXQ283. Also in that patent you state that the ribs on the oscillating disc will act as rubbing elements, do you not, and that is one of the advantages you claim for it? A. I will have to read it.

1219

RXQ284. On page 2 it says my invention in addition, etc., will act as rubbing elements. A. That is plainly stated there.

RXQ285. That was one of the objects of it, was it not? A. I believe so.

RXQ286. The same thing was true of the No. 4 model, was it not? A. In relation to the ribs, yes.

To the best of my recollection I haven't talked to Mr. Edmonds previous to yesterday. I spent a little time with Mr. Free previous to this time. 1220 I have not discussed with Mr. Lane personally anything about this case before I went on the stand and it is my recollection I never met Mr. Lane until yesterday. I had no talks with Mr. Lane other than to get some exhibits when called for by the other side in connection with the testimony. I knew I was going to be subpoenaed before the subpoena was served on me. They told me they would subpoena me. I would have come just as well on their request as on their subpoena.

1221

It is my recollection that the corrugations on the tub sides and bottom, Form 1, Exhibit 2, machine were there for the purpose of presenting a roughened surface for the clothes to slide over, move over, so as to increase the washing action by rubbing contacts.

RXQ300. Prior to the time you made your single vane agitator, it was quite the common practice of washing machine manufacturers to depend upon the rubbing of the clothes with wooden or other sorts of corrugated surfaces, vanes or corrugated surfaces or things of that kind? A. I believe it was quite common.

I believe I conducted quite a lot of experi-

mental work in connection with getting out the one vane agitator. I believe some of the exhibits now in the room figured in part of them. I believe we made six or seven or eight different types of structures before we finally found out the single vane would be a satisfactory device to make. The single vane is the only version shown by these models that has been used. We finally decided to use that because of efficiency.

I recall that Mr. Behan and Mr. Doughty were
1223 present in connection with the experimental work and also some of our employees in our experimental or model room. Tests were conducted to determine which was the most suitable machine for the field, and we concluded that the single vane was. I believe that work was done in the latter part of 1922 but I would have to refer to the record.

I don't recall specifically having a Maytag at that time but I believe we have had the Maytag machines. We had them approximately that time.

I believe it can best be determined from the
1224 records when we first put out the present machine where the blades are about three inches high and have 60 oscillations per minute. I would say we have been putting them out approximately four years. We make or sell more of that type than we do of any other type that we sell.

Comparing the single vane to the multi-vane, I would say that it might be one to ten or one to twenty.

Re-direct Examination by Mr. Edmonds:

I never saw Mr. Edmonds before day before yesterday and we never talked together about

the subject of my testimony before I started to testify. I don't know whether I would have testified without instructions from Mr. Behan. I would naturally have left the matter to Mr. Behan. I don't know that I can answer whether I would have testified at Mr. Edmonds' request if Mr. Behan had told me not to. I expect I would have immediately been subpoenaed if I had refused. I do not know that it is the case that Mr. Clark required that I be subpoenaed in order to secure my testimony. 1226

In all general respects the single vane machine to which I refer is that illustrated by patent issued to me, No. 1,748,442. In the operation of that machine when the vane is oscillated in the usual way, the tub is filled with water as is usual and there is a lot of clothes in the tub, I would say that the vane comes in contact with the clothes, and I believe the clothes contact with the tub wall.

Comparing the single vane and the multi-vane, I personally do not know that there is a great amount of difference in the quality of the washing done. I believe on the average the single vane models carry a somewhat higher price than the multi-vane but that can be readily determined. 1227

RRDQ345. Going back to this multi-vane machine shown on Exhibit 12 consider the operation of that machine with a normal load of water in it and a normal load of clothes in it and state what takes place when the agitator is oscillated with reference to its action upon the clothes? A. You are now referring to the high post multi-vane machine?

RRDQ346. Yes. A. It is my belief that there is a flow of the contents of the tub generally outward in the bottom, relatively in the bottom, upward along the sides of the tub, inward along the top of the contents and down again approximately through the center, during which time the water is forced through the clothes and the clothes rubbed somewhat by the blades.

RRDQ347. Are the clothes rubbed by anything else other than the blades? A. The clothes may
1229 rub against the sides and bottom of the tub.

RRDQ348. In that respect, is the multi-vane machine different from the single vane machine? A. I believe it is quite a little different from the single vane type.

RRDQ349. What is the nature of the difference? A. Do you want me to describe the action of the single vane?

RRDQ350. I would rather you would state what the nature of the difference is. A. In the single vane the circulation is generally across the entire bottom of the tub, up one side, across
1230 the tub and down the opposite side instead of from the outside to the center and down the center. I believe that is about what the difference amounts to.

RRDQ351. In both of these machines, if I understand your statement correctly, the clothes move downwardly at one time in the course of their movement but the difference is in the multi-vane machine they move downwardly at the center and in the single vane machine they move downwardly at one wall of the tub, is that the difference you meant to convey? A. That is part of the difference.

Re-cross Examination by Mr. Lane:

In both the single vane and the multi-vane of the present type of machines sold by the 1900 Company the interior of the tub is relatively smooth. It is as smooth as we can make it commercially. The effort is to create as great a flow of water around and through the clothes as possible.

RRXQ355. And to do away with any action of cleaning other than the violent action of the 1232
water so far as possible? A. I don't know that that is entirely the case. There is some rubbing action.

RRXQ356. That is what you intend to have take place there, isn't it, as far as possible? A. I might say we would like to have that take place.

RRXQ357. That is what you strive to do in making these machines? A. Yes.

The reason why we used the high agitator vanes, say 3 inches to 5 inches in height in construction of these later model machines and ro- 1233
tated them at a rapid rate of speed of 60 revolutions per minute, I believe was done largely for the purpose of creating a very decided water action and to hurry the washing. It w done to get a violent action of the water in the contents of the tub throughout the tub.

Re-direct Examination by Mr. Edmonds:

The tub marked "Laundress" is one of the later present day high center post multi-vane machines. The cylindrical wall of the tub is made relatively smooth, I would say, in so far

as its effect on the clothes. I do perceive a certain number of vertical corrugations in the tub wall, quite a number of them around the tub wall. Forty-eight might be a good guess as to the number of corrugations.

I don't believe the corrugations are as deep as in the bottom of the tub in Exhibit No. 8, but that can be easily checked. Without taking accurate measurements, I believe the ribs in the bottom of the old sample tub are higher than those
1235 in the present day enamel tub. They might be possibly 50 per cent higher. The machine in this room over by the wall which has in it some circumferential corrugations in the cylinder wall is known as one of the Whirlpool models. It is a single vane machine. That has these circumferential corrugations in the cylinder wall in pairs of two each. In that respect it is very similar to Exhibit 4.

Re-cross Examination by Mr. Lane:

1236 This Laundress machine with vertical corrugations is a recent addition to the line. I believe that all or practically all of these types have been relatively smooth interiors. The general product as distinguished from a few recently made where there are minor corrugations in them, was perfectly smooth and without corrugations. Some models perhaps have circular ribs or vanes but the general product is practically smooth.

GEORGE L. DAVIS, recalled.

Direct Examination by Mr. Edmonds:

I have looked in the files of the 1900 Company and to the best of knowledge have brought the original drawings which were used in the manufacture of the Form 4 machine, constituting Exhibit 4. I produce a brown paper folder in which is a large number of drawings on vellum paper. I believe they are the drawings we worked from. The paper has the date when the drawing was made, scale and various other data. That was the practice of the 1900 Company. I attempted to collect the drawings made by an employee of the company named Green. That bears the initials W. G. The drawings are as follows: 1238

Gear Case Sheet No. 1	No. 802	4/7/21
Gear Case Sheet No. 2	802	4/7/21
Connecting rod clutch lever	814	5/3/21
Thrust plug	826	5/17/21
Shaft tube bushing	827	5/17/21
Worm gear casting	838	6/17/21
Gear Case Sheet No. 1	802	6/24/21
Gear Case Sheet No. 2	802	6/27/21
Tube packing	845	7/11/21
Short leg	841	9/12/21
Clutch lever stud	857	9/12/21
Drip pan	804	9/13/21
Crank	820	9/13/21
Crank driving collar	822	9/14/21
Double chain stud	836L	9/15/21
Single chain stud	836A	9/15/21

1239

	Connecting rod	835	9/15/21
	Agitator	847	9/19/21
	Chain hook	861	10/3/21
	Spring for chain hook	862	10/11/21
	Slat for agitator	865	10/19/21
	Nut for chain hook	866	10/24/21
	Crank pin	833	10/25/21
	Base for thermal switch	867	10/26/21
	Base for thermal switch (casting)	867	10/26/21
	Oil gasket	868	10/28/21
1241	Crank driving collar (casting)	822	12/2/21
	Crank (casting)	820	12/6/21
	Oil disc	870A	12/7/21
	Shaft tube (casting)	803B	12/22/21
	Shaft tube (casting)	803B	12/23/21
	Pulley (casting)	830	12/27/21
	Pulley	830	12/27/21
	Leg (long)	840A	12/28/21
	Spring, stuffing box	844A	1/9/22
	Worm gear (casting)	838L	3/1/22
	Worm gear	838L	3/1/22
	Spider (casting)	828A	3/1/22
1242	Worm gear shaft	832A	3/3/22
	Agitator shaft	823A	3/8/22
	Worm gear	838S	3/13/22
	Worm	834L	3/13/22
	Worm	834S	3/13/22
	Agitator shaft cover	842L	3/14/22
	Base (Casting)	801	4/11/22
	Base (Casting)	801	4/11/22
	Standard for wringer (casting)	813	4/17/22
	Clutch lever (casting)	809	5/3/22
	Locking pin	812	5/5/22
	Locking pin spring	817A	5/5/22
	Drip pan (casting)	804	5/11/22
	Worm gear casting	838	5/15/22

Graphite bronze bushing	872	5/17/22
Connecting rod clutch lever	814	6/1/22
Standard for wringer	813	6/9/22

Going by the initials, I would say that all these drawings were made by Mr. Green, and I believe that these parts all belong to the Form 4 machine, although there are a few smaller ones there that are hard to recognize. The dates I have given are the dates on which these drawings were made as far as I know. I believe that would be true in accordance with the practice of the 1900 Company. 1244

(The witness also produces other drawings made by Mr. Wooster as follows):

Wringer gear case (casting)	805	4/12/21
Clutch locking sleeve	811	4/26/21
Short wringer gear shaft	815	5/4/21
Pipe standard for wringer	816	5/4/21
Long wringer gear shaft	825A	5/13/21
Wringer coupling	824	5/13/21
Submerged agitator		5/19/21
Gear case (casting) sheet No. 3	802	6/2/21
Gear case (casting) sheet No. 4	802	6/2/21
Gear case (casting) sheet No. 5	802	6/3/21
Motor bracket	808	6/16/21
Motor bracket (casting)	808	6/16/21
Clutch lever	809	8/16/21
Clutch lever bracket	810	6/20/21
Clutch lever bracket (casting)	810	6/20/21
Gear case	802	6/27/21
Agitator support	871	2/3/22
Agitator retaining thumb screw	833B	5/5/22
Splined agitator shaft & spider as machined for retaining thumb screw	528	5/6/22

1245

There are quite a number of duplicates in here. Probably a new drawing was made for the part as changed.

The drawings bear the initials V. J. W., which I believe is Vernon J. Wooster. I can't answer definitely as to whether they were all made on the dates given in the list, but I believe so. The practice since 1921 has been to mark on each original drawing the date on which the drawing is made. I believe the drawings represent the
1247 parts used in the Form 4 machine.

The third group of the folder has drawings as follows:

Wringer gear case	805	4/22/21
Clutch rod	819	5/13/21
Worm gear	838	6/17/21
Sleeve stud	852	8/11/21
Castor support	837A	8/12/21
Spring stud	853	8/13/21
Spring ring	855	8/13/21
Sleeve	851	8/13/21
1248 Buffer spring	854A	7/13/21
Worm	834A	8/16/21

I believe those drawings were made by C. G. Martin. I also do not recognize positively some of these parts as having been actually made. These drawings cover quite a period of time. No doubt I had contact with the drafting department to some extent, as well as Mr. Doughty, engineer in charge of that. It would be my belief that that drafting work was carried out during the periods of the dates as there given. This set of drawings was produced and handed to me in our engineering department by the draftsman

there. I instructed him to get me the drawings illustrating the Form 4 machine. So far as I know they have been in the files of the 1900 Company since they were made except when they were taken out for actual use in the plant.

Green and Wooster are still in the employ of the company.

The drawing handed me I believe is an assembled drawing of Form 4 machine incorporating many of the detailed parts. I cannot explain why that drawing has no date on it, and I do not 1250 know when it was made.

Mr. Edmonds: All the drawings that have been identified by the witness are placed before counsel for the plaintiff for his examination. The number of them is so great, I shall not offer all of them in evidence, but I shall pick out what seems to me to be representative drawings and offer them in evidence and if any additional ones counsel for plaintiff want in the case, I will be glad to offer them if 1251 counsel will indicate which ones he wishes, or, of course, they may be offered separately by the plaintiff.

Deposition of ROBERT D. QUINN, produced in behalf of defendant.

Direct Examination by Mr. Edmonds:

I am in the employ of the 1900 Company as assistant general manager in charge of sales. I

joined the company in June, 191° I was employed as assistant general manager, and along in 1922 or 1923 they added sales to me.

Referring to Exhibit 9, first three sheets, being a copy of a letter dated January 11, 1921, as I remember this particular copy, Mr. Behan and Mr. Clark asked several of us to get all the information we possi could some time ago in regard to the Form 4 Whirlpool or agitator, and in delving through our records, I ran across this
1253 letter, together with some other letters that were written by Mr. Barker, who was Sales Manager of the 1900 Washer Company, to Mr. Lee Holmes, who was the Western District Sales Manager. I took these letters out of Mr. Holmes' file. At least these appear to be the same ones. I have no identifying marks on these to know they are, but they look like the same ones. That was turned over to Mr. Clark, as I remember it. Also included were letters of January 15th and February 17, 1921. In all probability I got this, but I won't swear to it. It looks like a letter right
1254 out of our files. They came from the file in the Binghamton office under the name of Lee Holmes. I knew nothing about the writing of these letters at the time they were written. I know nothing of the history of the letters dated March, 1921. The letterhead on which they were written presumably was used in 1921.

It is hard to say when I first got to know about Form 4 machine. I saw it and knew about it around the shop, in the experimental line. My recollection is hazy. I thought there was a flat plate with a lot of serrations on the outside and that they had a submerged agitator in the bot-

tom of the tub. That is only a faint recollection, and as to when it was, I can't say. I saw the Form 4 in the factory but I do not recall who was working on it. As I remember it, I demonstrated this Form 4 machine before a few men, what you might call a convention of men brought in to see this change over from the Forms 1, 2 and 3 to the Form 4 or what we called the Whirlpool at that time.

This sales conference was around October or November, 1921, and it is my recollection that I 1256
demonstrated the machine at that time. The general purpose of the meeting was trying to interest men in this new product and inform them how it operated, and showing them how we had taken the mechanism from the top to overcome the objections of the Forms 1, 2 and 3 and placing it on the bottom. Some of these men to whom I demonstrated the machine were salesmen of the Company and some were dealers owning their own business. I can't tell how many men were there. The meeting was held in the plant of the 1900 Company. We had not produced and were 1257
not ready to market them at that time. We only showed them the sample that was built, no doubt, from temporary patterns and details. I could not say how soon thereafter shipment of the Form 4 machine began.

I am familiar with the tally book. As far as Form 4 is concerned, the tally book shows there were two of them sent out on October 8, 1921.

From checking up facts in the office for Mr. Clark and Mr. Behan we know definitely one was shipped to Mr. Holmes on October 8th, No. 1001, and by processes of deduction we figure 1002 was shipped to him.

1258 *George L. Davis--For Defendant—Direct.*

Q37. Did shipments take place shortly thereafter to others? A. Only spasmodically.

Mr. Holmes was working on a large contract out West and couldn't get the business on account of the price of the Cataract. It was hoped this machine would give him a chance to get that business and inasmuch as the contract was going to be let shortly, they sent these machines out to him as samples.

The book handed me is a monthly copy of
1259 requisitions showing requisitions issued and shipments. I find a copy of a requisition showing, as to machine No. 1001, that it was entered on September 30, 1921, and shipment made on October 8, 1921, of two sample new agitator electric machines to W. Lee Holmes, San Francisco. That is Form 4 agitator, shipped him on memo. invoice only, not sold.

(Page of the invoice book offered in evidence as Defendant's Exhibit 13.)

1260 Pages 1 to 14 of the tally book contain serial numbers. We use the book to look up when there is a question as regards a certain serial number of machine to find out approximately when it was shipped. I do not refer to this book very often. I have referred to it to get information for Mr. Clark. So far as I know, the book has been here in the office of the 1900 Company continually for the past 12 years.

I do not know of any other record of the company in which similar information is collected.

Pages 1 to 14 contain a series of numbers of the Form 4 or Whirlpool and series of dates.

The numbers and dates indicate the serial numbers and dates of the machines when shipped. The second date means that that particular machine came back for some reason or other, dealers credit gone or machine gone bad, something in regard to the order was not correct, or shipped out in error, and when it was re-conditioned, put through the factory again, it was shipped out and a second date of shipment stamped against that serial number. 1261

Q55. Will you state by reference to pages 1 to 14 between what date the Form 4 machines were shipped as shown by that tally book? A. It shows here October 8th, 1921, and the last date November 27, 1923. 1262

These machines gradually dwindled off in shipments.

Generally speaking, the company made and sold Form 4 machines during the period from the latter part of 1921 until 1923. At Mr. Free's request last week, I checked into this and as near as I can find out, there was approximately 700 such machines made and sold. 1263

The machine Exhibit 4 in front of me is the old Form 4 or what we later called the Whirlpool.

Referring to invoice book, requisition No. 11,632, that is the billing copy of that requisition showing the shipment of three new style agitators Form 4 to W. A. Osgood, Syracuse, N. Y., Serial Nos. 1035, 1043 and 1033, January 18, 1922.

(Said page offered in evidence as Defendant's Exhibit 14.)

(Stipulated that photostatic copy may be substituted.)

The book I referred to is a monthly compilation of all requisitions billed by the company during the month of January, 1922. Some cover repairs, extras and parts.

Serial number on the Exhibit 4 machine is 1033.

1265 According to the way we kept our records, Exhibit 14 refers to that particular machine, the Osgood shipment.

I have been served with a subpoena.

Cross Examination:

I have been in conference with Mr. Free in getting the information he wanted. Under instructions of Mr. Behan who is in charge of patent work for this company and also Mr. Dieserud and who also instructed me to give all the information I possibly could, I would have at-

1266 tended without the necessity of a subpoena.

I don't think Mr. Holmes got a contract as a result of sending the two samples on October 8th. I haven't any recollection of having made sales as a result of those being sent out. I couldn't say what happened to these machines. So far as I know, there is no way of knowing. I have no record only of their being shipped interdepartmental and to our own company. So far as I know there is no way of knowing. There is nothing written in the tally book other than the pencil notation "Whirlpool." I would say that the shipping clerk made the pencil notation "Whirlpool." The only other way that I can

say that is the Whirlpool No. 4 machine is that my memory is that we started numbering these at 1000. There is nothing in the book itself to show that it is the Form 4 machines other than the pencil notation "Whirlpool" at the top.

We later put out another Whirlpool machine after we abandoned that one.

As to the cause of the dwindling off of the Model 4 machines, it might have been the commercial end, that is, in regard to sales, the cost of sales, but I think the actual answer was that 1268 the cost of the machine was too high in proportion to what we intended it to be.

XQ91. You spoke about the work that led up to the making of that machine and putting the rubbing agitator at the bottom instead of the top. Do you recall about when that was done? A. You mean when the Form 4 came out?

XQ92. Yes. A. Of course, according to these records here, it came out along in the latter portion of 1921, but I imagine several models were experimented with prior to that.

The primary purposes of putting the agitator 1269 at the bottom of the tub was to do away with the commercial objections to the top heaviness of the machine, the lid falling down, being cumbersome in not being able to swing the wringer 360 degrees. This was simply a matter of improvement when we put the agitator on the bottom. It was a very different design and had different talking points and we could go to the salesmen and get them to go out and do the selling, and, in no way, do I believe, that machine was brought out only for the one purpose and that is to be cheaper than the Cataract. Unfor-

tunately, the cost was high as compared to the Cataract, consequently the dwindling.

As to the purpose of that No. 4 type of machine and its predecessor, the answer was to create more water action. You have the clothes and the water moving in synchronism. To wash clothes you have got to pull the clothes through the water or force the water through the clothes, move the one faster than the other. The agitator disc of Form 1 dropping into the clothes
1271 operated so you had not only the force of the water at the edge of the disc but you had a tumbling effect by the clothes being in contact with the slides or rubbers on the bottom of the disc and that presented new surfaces where water could go through and get the dirt out of the clothes. In that action the rubbing action assisted in cleaning the clothes.

Referring to the agitator used in the No. 4 machine, it would have virtually the same effect, with the exception you have a more direct flow from the agitator in Form 4 than you would have
1272 in the uniform displacement of the ribs, but you have the same action. That is true of all types of machines the 1900 Company made while I was with them.

Re-direct Examination by Mr. Edmonds:

RDQ100. Will you look at the tally book we have referred to, particularly on the bottom edge of the book, and see what you find there? A. "Agitator electric No. 4" on the bottom edge. The question was asked me, was there any information on the inside.

During the period from October, 1921, to the

end of 1922 there was not to my knowledge any washing machines made by the 1900 Company that were designated by serial numbers from 1000 up to 1700. There might have been some machines we ran, not that serial number, other types, gravity, hand machines, water power, gas engines and other machines that carry numbers. No washing machine of regular manufacture that I know of was given any serial number starting at 1000 during that period of time.

Re-cross Examination by Mr. Lane: 1274

Referring to Form 1 machine, the purpose of the corrugations on the bottom and sides of the tub to anybody that knows anything about washing, you have got to retard the clothes so the water can get through them, otherwise you have got to grab the clothes and pull the clothes through the water, and these ribs more or less acted as a retardant for the clothes so the water would go through the clothes.

RXQ104. Did they rub the clothes? A. Yes, in that movement, they would naturally rub up 1275 against the ribs there.

RXQ105. A slight movement so you would get a rubbing? A. Yes, sir, that also turned the clothes over.

RXQ106. That acted as rubbers on the clothes? A. Yes.

RXQ107. That is, in these machines you depended on rubbing to a very substantial extent to obtain cleaning of the clothes? A. Yes, sir.

Re-direct Examination:

I did not make the statement that in order to wash clothes you must either drag the clothes

through the water or rub them on some rubbing surface. There are two methods of washing. One is to get the clothes through the water or get the water through the clothes. In other words, when you put soap in contact with clothes you form an emulsified solution that sticks to the clothes. In other words, your dirt goes to the soap just like steel goes to a magnet. The thing to do is to rinse off that emulsified solution. You can do that in either of two ways, either by shooting the
1277 water through the clothes or by shooting the clothes through the water. If the two of them travel in absolute unison, there is no possibility of washing off that emulsified solution. We elected to go on the basis of getting the water through the clothes. That election was made long before I ever came with them. We have adhered to that since then, getting the water through the clothes. We relied in the old Cataract on forcing a large volume of water through the clothes that were retarded by the ribs you see in the bottom of the tank here. If that was perfectly smooth,
1278 you wouldn't have the water action because the clothes and water would travel together. You have got to have them out of step or out of phase.

My duties at present include the Sales Department and also assistant general manager. I have charge of the Sales Department.

Re-cross Examination by Mr. Lane:

I am a graduate of Purdue University, 1910, electrical engineering.

In the present type of machine, there is no rubbing effect from the tub sides or bottom.

What we actually tried to do is get more water through the clothes so that you do the washing solely through action of the water.

The purpose of the corrugations on the Laundress machine is purely a decorative principle. We developed that effect as we wanted to get away from the plain effect of the tub. The corrugations had no purpose whatever in the washing.

The Laundress is not a standard machine. It is a GMC set up. In the single vane machine 1280
we have three double ribs on there also, but the mechanism is standard. It takes the plainness off. But these three vane types are all the same.

Re-direct Examination:

Eight pounds dry weight clothes is standard for a normal load of clothes for the Whirlpool, single vane machine.

For the multi-vane machine it is approximately 5½ to 6 pounds, depending upon the type of garments. 1281

In the single vane machine with a normal load of water and 8 pounds of clothes in it and the machine in normal operation, the clothes move around inside the tub. That is the reason for the whole thing. In moving, they move from the bottom up toward the top and at another time from the top toward the bottom. They move about. It all depends upon the amount of clothes and the character of clothes. Considering the normal load, the general path is up the side, water being buoyant, it can't jump up, so it must go across the top and that water being displaced, pulls it down through the other side and down

across the bottom and then up. In other words, the clothes travel through a greater length of water in the Whirlpool than in the multi-vane.

It is not necessarily so that in the single vane machine when the clothes move down with a normal load of eight pounds, that the downward movement carries them down to a point where they would contact with the agitator, because your circulation vane is on one side pulling them down on the side where it is absolutely smooth.

1283 That circulating vane oscillates through a wide arc of 180 degrees. When the clothes move down and the circulating vane is oscillated to 180 degrees, I think that some of the clothes may come into contact with the single vane, but not an awlful lot. I would not say the entire load would not be contacted, lots of times the clothes never touch that vane. Some of them naturally with an 8 pound load may touch it, but the primary purpose of the single vane is to create a strong current. The clothes are not pushed upwardly at any time by the water or

1284 the agitator or anything else. The clothes being buoyant, they follow the current set up.

RRRDQ136. When moving upwardly, do they at any time contact with the cylindrical wall of the tub? A. No, but—

RRRDQ137. No contact? A. The clothes on the outside will come in contact with the wall. They are bunched up.

When the oscillating vane moves from one extreme of oscillation around to the other, the clothes will not move down into that space. The clothes being buoyant, the current going up will carry them up, the water going down, it will be

sucked across and some of the clothes may go over the circulator and some may not. It all depends on which way the currents are turning in that tub. With 2 or 4 pounds, the less number of pounds you have in there, the less chance they have of touching the circulator. With 8 pounds of clothes in the water, they will sink down part way when they get water-logged.

When the single vane moves around, it is inevitable that it will touch the clothes. I would not say that when it touches the clothes it will 1286
move them along with it, because that is a very smooth agitator with rounded surfaces and just simply flops right under them. It is traveling faster than the clothes but it won't take a grip on the clothes. It will not push the clothes out of the way. It will go right ahead and go underneath the clothes, because it is moving faster than your clothes could possibly move there. The construction of that vane there calls for a high degree polished surface with rounded corners.

The normal load of clothes for machines of 1287
the Form 4 type is about between 4 and 5 pounds.

In the operation of the Form 4 machine the clothes would be buoyant while the machine was stationary, but the minute the machine started up, on account of the void on one side of the agitator, you would have currents set up on the opposite side that would have a tendency to throw them over. Therefore, they would have more of a rolling action. There would be more of a rolling action than in the agitator that had uniform displacement of discs or rub-

1288 *William Green—For Defendant—Direct.*

bers or vanes. The same clothes with the same amount of water will have the same amount of buoyancy in the single vane machine.

Re-cross Examination by Mr. Lane:

The purpose of the single vane type of agitator going at a rapid rate of speed is to do away with the action on the clothes and set up an action of the water.

1289

Deposition of WILLIAM GREEN, offered in behalf of Defendant.

Direct Examination by Mr. Edmonds:

I live in Port Dickinson, and have been employed by the 1900 Company for about 12 years as a sort of designer of mechanical parts, on washing machines. Most of my work is done on the drafting board. That has been true since prior to 1921.

1290 Any of the drawings that bear my initials W. G. was detailed by me. These drawings bear my initials. I made the drawings at the dates they bear. It was the usual practice to date the drawing when it was finished. Except sometimes as in this first sheet the title is put in here by hand. Sometimes that would be filled in and the date put on at that time and the detail furnished later. That is an exception to our rule.

I did not do the designing entirely. What I mean by that is perhaps the part was not fully thought out and that I finished it. In the main I copied from Mr. Doughty's instructions.

Deposition of VERNON J. WOOSTER, called on behalf of Defendant. 1291

Direct Examination by Mr. Edmonds:

I am in the employ of the 1900 Company and have been since the early part of 1920, drafting, designing parts for machines.

This submerged agitator machine was one of the things developed and drawn about 1921 and 1922. 1292

All the drawings initialed V. J. W. were drawn by me. Some were drawn by me and traced by someone else. They were drawn by me originally.

I made the drawing of May 19, 1921, on that date, "Submerged agitator drawn, V. J. W., drawn May 19, 1921," and the change made on the drawing 8/16/21 by Mr. Green. During this time I was in touch with Mr. Doughty every day mostly.

1293

Deposition of HERMAN W. DOUGHTY, called on behalf of Defendant.

Direct Examination by Mr. Edmonds:

My present place of residence is at Detroit, Michigan. I was in the employ of the 1900 Washing Machine Company from November, 1919, to October, 1933.

Prior to 1919 I was with the International Time Recorder Company of Endicott, N. Y.

I served the 1900 Company as mechanical engineer. I was most concerned with the im-

provement of old machines and designing of new machines, washers and ironers. Part of my function was to design new mechanisms. I was called chief engineer.

When I went with the 1900 Company in 1919 they were making some wooden tub machines of different models and also a metal machine having an oscillating tub, known as the Cataract.

When I came with the company in 1919 there was one type of machine which was called the
1295 agitator electric, which had a wooden tub, wooden legs, wooden wringer and a wooden agitator. The motor was below the base and it was belted to the mechanism at the top of the tub. Part of that mechanism was attached to the wooden cover hinged at the side. It had an agitator driven from a telescoping shaft at the center of the cover. The agitator was of wood and rested on the top of the water enclosed when it was in action. That was a machine like Exhibit 2.

There was another wooden tub machine which
1296 was called the E. M. O. which was really a converted hand machine having a wooden tub supported upon a frame work in which the tub itself oscillated by means of a mechanism driven by a motor, which replaced the hand operation of some of the other models.

Then, also, this wooden tub machine which I first described also existed as a metal tub machine. It was in principle identical with the form in which the wooden tub was used. The metal tub was approximately 24 inches in diameter and about 16 inches high, smooth. At the top it had a piece of angle iron, hot gal-

vanized angle iron as a reinforcement at the edge. It had a copper bottom with the edge of the copper bottom inserted in the folded back portion of the side. I saw such a device when I entered their employ and such a tub is in the room.

These machines had tubs like Exhibit 8, and one of these machines is shown in the photograph Exhibit 10. There were one or more of those machines when I first came to work in November, 1919. 1298

For some months I was assigned to the development of a machine to take the place of the agitator electric machine.

When I first discussed the matter of entering the employment of the 1900 Company, the matter was mentioned to me that such a machine was desired, that is something which would replace the agitator electric machine which had some disadvantages, and another machine was desired to take its place. I think I discussed that machine with both Mr. Behan and Mr. Barker, and the matter was discussed at various times during the few months following the time when I came. I have some notes which I looked up in relation to this machine and I find, —I will have to refer to these. I have one which is entitled "General Progress. Substitute for Agitator Electric Washer" under date of 9/16/20, I have the word "Start." 1299

This memorandum is a leaf from a loose leaf note book which I have kept for a great many years. I first had it, I think, in about 1915 when I was in Newark, N. J., where it was purchased, and when I purchased it, I purchased a stock of loose leaves for it, which came in a paste board

box of a size to take the leaves and it was my practice to use the binder, the leather binder, which I have had from that time, putting blank leaves in the binder, and when they were filled or when the use for them had passed, I would take the leaves out of the binder and put them in this paste board box, and it was from this paste board box I took these sheets of which the one I read from was a part.

I have continued the use of the binder until
1301 the present time.

I recognize Exhibit 7 as a sketch which Mr. Behan showed to me in 1920, as I recall it now, as part of the various discussions which we had about the production of this substitute for the Form 1 agitator electric. He first showed that to me in February of 1920 and later in that same year he made an alteration to it which I noted at the bottom of the sheet as scheme of the revolving tilted agitator, dated 9/16/20 and signed my initials. I do not remember what entered into the discussion of
1302 February 9, 1920, with Mr. Behan more than what this drawing shows. As I remember it it was part of the numerous discussions which occurred about that time.

The drawing, as originally made in February, 1920, without the addition made later, shows a sketch of a washing machine, having a tub of water and an agitator with ribs or buttons or something on the bottom of the agitator, the agitator being carried at the top of the shaft going through a post from the bottom of the tub, and driven by the suggestion of driving mechanism underneath the bottom.

Q32. State whether or not that arrangement

of the driving mechanism entered into the discussion that you had with Mr. Behan in 1920? A. I do not remember the conversation exactly.

Q33. Do you remember the subject of the conversation? A. The subject?

Q34. I mean beyond what you have given us? A. I do not.

Q35. This handwriting at the bottom which you read a few minutes ago, is that your own handwriting? A. Yes, that is my own handwriting. 1304

Q36. Is there any association in your mind between that material written on the bottom of Exhibit 7 by you and this note in your diary which you just referred to? A. The dates are identical. I cannot remember anything further of the exact conversation.

Q37. State what you did in connection with the development which succeeded, following the date of the note in your diary where you started work on this proposition? A. I started to consider the problem as I had time, from time to time. 1305

The top sheet of Exhibit 9 was part of the same progress of the development of that washing machine. It is a list of requirements or characteristics that were being considered for it. That is in my handwriting, written 9-30-20.

Q42. Does that sheet enable you to say anything about any person with whom you discussed the proposition on that day? A. I cannot be absolutely sure of that, but it is my recollection that it was written on the occasion of Mr. Behan and myself discussing the production of the machine.

Q43. Will you carry the narrative on to the next step and if you wish, you may refer to the second sheet of Exhibit 9? A. A study was given to this machine in the interval and the subject was discussed with Mr. Green and some steps taken to get it under way. We had many other things going at the same time and my attention was not wholly directed to carrying out this matter.

Green did certain drafting work in connec-
1307 tion with getting this work along.

As to what followed, we produced a machine having an agitator at the bottom of the tub operated by a shaft coming up through the center, leaving the top of the tub open, and with the operating mechanism below the base. This was a rough model mounted on a piece of boiler plate and we used one of the Form 3 tubs and used other parts. There was a wringer from a Cataract machine and a wringer head from the Cataract. We also took a gear case with a worr wheel and worm and clutch for starting and
1308 stopping, an agitator crank for producing the reciprocating motion and the mechanism for producing that reciprocating motion between the crank and agitator consisted of a wooden bar, to each end of which a bicycle chain was attached, and the bicycle chain in each case came back toward the center of the bar, where it wrapped around in opposite directions a metal cylinder like an old fashioned bow drill. This drum, to which the chains were attached, was placed at the lower end of the vertical shaft to the upper end of which, after passing through the bottom of the tub, the wooden agitator was applied. The wooden agitator was made of laminated boards

with wooden cleats attached to the upper surface. The crank which operated the wooden bar was so arranged as to slide on the shaft which carried the worm wheel and to which the motor transmitted motion through a worm, and in sliding it up and down, the crank in the lugs which were rigidly attached to the shaft, and in that way, when the crank was raised, the lugs in the crank revolved, and when the crank was down, the lugs disengaged and the crank did not revolve and the agitator was at rest. 1310

That machine was made in the factory here in the tool room. It was finished in the early part of 1921. We made a test on February 8, 1921. I cannot answer exactly what periods of time the construction of the machine extended over. I would have to base that on my knowledge of the construction of the machine and the length of time which it ordinarily took to produce models of that kind. I would say, perhaps, six weeks.

Drawings were used in the construction of this machine. I am not clear whether Green 1311 made all the drawings or part of them. I know definitely that he made some of them.

Exhibit 8 is the same machine that I have described but it has been changed in certain respects since that model was made. As far as I can see there is no change in the structure of the base, the supporting platform, and the legs, apart from the actual mechanism of the machine. It is the same type of tub. I would not be sure it was the identical tub. It may be the identical tub. These tubs were all of the type used on Form 3 and were all made alike.

When the machine was completed, tests were

made to see how it performed. I conducted the tests in connection with different people around the factory. I know we had trouble with the agitator warping when it was made of wood. We replaced that wooden agitator with a sheet metal one to which eventually wooden ribs were screwed. These ribs were on top and screwed through from the bottom.

Q62. I omitted to ask you one question, so I want to go back to the drawings used in making
1313 that first machine. Are you able to produce any of these drawings? A. No, I cannot produce them.

I have made an effort to get them, but would not know where I could find them where I have not already looked.

To go back to the subject of tests I was talking about, such a test was made on February 8, 1921, I have a record of that test.

(Witness indicates two yellow sheets forming part of Exhibit 9.)

1314

It is a record in my handwriting of a test made on February 8, 1921, of this Form 4, the Whirlpool washer. This test gives the character and weight of various clothes that were used.

Q68. State any further items in connection with this test? A. This test gives the character and weight of various clothes which were used.

Mr. Lane: You have a sheet before you when you are testifying now?

A. Yes. It gives the temperature of the water and the length of time the tests were run, and comments upon the result of the test. The white clothes weighed 9 pounds 5 ounces.

1315

Q69. To guard against possible misapprehension whether or not the four items there, the white clothes 9 pounds 5 ounces, and so forth, all totalling 18 pounds 3 ounces, indicate one test or four tests? A. It indicates that the tests were divided into four parts. The white clothes were washed first and various other items were washed the length of time indicated there.

Q70. The 18 pounds of clothes didn't get into the tub at once? A. No, the 9 pounds and 5 ounces went in the tub at first.

1316

Q71. Are there any other items in connection with this test sheet which you wish to speak of? A. Nothing except the washing was done satisfactorily.

Q72. State this fact about the condition of the machine at the time the test was made. You were speaking of cleats arranged on the rotary oscillatory member. At the time of the test, were the cleats equally spaced or unequally? A. They were unequally spaced at the time of the test, because we found out earlier in preliminary experiments we needed to have them unequally spaced.

1317

Q73. Why, what lead you to find that out, how did you come to arrive at that conclusion? A. It was found that when the cleats were equally spaced, the current of water started from the center of the agitator and went out radially in all directions and that if a piece of washing happened to come so that it was about centrally placed over the agitator, the current of water flowing out in all directions would hold it there. It would stay there for, well, perhaps stay there indefinitely.

The water would go out near the surface of the agitator to its periphery and then go up-

4
3
9

ward along the walls of the tub to the top to the surface of the water, and then flow inwardly toward the center, down at the center to the center of the agitator and repeat that flow as long as the agitator was in motion. That is the general action whether the cleats are equally spaced or not. That description holds, except that if they were equally spaced, the water would flow out uniformly radially in all directions from the center of the agitator. When unequally
1319 spaced, a greater flow would be produced on one side of the agitator, which, if anything, got on there, would cause it to be displaced to one side of the center of the agitator, and in that case, being displaced to one side of the center, it was out where the oscillation of the agitator would get it loose because that point would be out where it would be at some little distance away from the center of the agitator.

I do not see any reference to this subject in the report of the test conducted February 8, 1921. There is an item relating to the tendency
1320 of white clothes to stay in the center without much change in position, but that is due to the fact that a load of 9 pounds 5 ounces was quite a load, and, of course, the water action is slowed up by the presence of clothes.

The sentence at the bottom beginning "Some tendency," etc., relates in my opinion to the tendency of a large load of clothes to not circulate rapidly, the larger the load, the slower the circulation in any event.

Q78. What is the fact with relation to the third test, to the other tests, as for instance, the second one dealing with the colored clothes where the load was 1 pound 14 ounces? A. When-

ever the load is lighter, the clothes follow the course of the water which I have outlined much more readily. The heavy load has a dampening effect upon the circulation of water slowing it up to a degree depending upon the quantity of clothes present.

Other tests were made of this machine in the period around February 8, 1921.

Tests were made preceding this test, because I remember very distinctly certain things which occurred, for instance, the warping of the wooden agitator which warped and rubbed the bottom of the tub and did not perform satisfactorily, and also our experiments in relation to the discovery of this unsymmetrical arrangement of the vanes. These tests were made with the machine which had these alterations made in it.

Q80. Did you continue to make tests after February 8th? A. I can only answer that generally that we always made tests on new machines to determine their performance and whether the construction was adequate for its purpose.

Q81. Have you been able to locate any further records of tests of this machine made at any time in the general neighborhood of February 8, 1921, in addition to this record you have discussed dated February 8th, 1921? A. You asked for records in the neighborhood of February. No, I found no other records at that time.

Q82. Have you looked for such records? A. Yes.

Q83. Both here in the plant of the 1900 Company and among your personal files? A. Yes.

Q84. Do you recall a further incident in connection with this machine a few weeks after this

1324 test recorded on the date of February 8, 1921? A. I have some records, or a few records of occurrences somewhat later in that same year.

I discussed the machine and the tests and the result of the tests with Mr. Behan. I kept him advised of what was going on. He was always very closely in touch with the tests which were carried on. I do not recall at the moment anything in particular as to any instructions as to any particular thing he wanted me to do in con-

1325 nection with the machine shortly after the test of February 8, 1921.

Shortly after February, Mr. Behan wished me to send a report to Mr. Clark about the machine so that application for the patent could be made, and I did so.

Mr. Clark was here at the plant and saw the machine and following that I wrote him a letter on March 23rd, in which I outlined the features of the machine and its plan of operation, and told him I would send him a sketch showing its construction.

1326 Q91. Are you now referring to the letter in Exhibit 9 dated March 23, 1921? A. Yes.

Q92. Did you sign that letter? A. Yes, I did.

Q93. The text of the letter you composed in one way or another, dictated or wrote it? A. I wrote it out in longhand and it was copied by a stenographer.

Q94. Does the letter enable you to fix the date when Mr. Clark was here at the plant? A. Yes, it was on his visit there on March 14th. I talked with him on that date. The machine was shown to Mr. Clark and it is my recollection that a test was made in his presence. He wanted information from me substantially what I have

indicated here in this letter of March 23rd, and he wanted a drawing of the machine from which he could prepare drawings for a patent application. At that time we did not have a drawing suitable for such use and a drawing had to be prepared. I had such a drawing prepared and sent it to him on March 25th, 1921, with the letter that appears in Exhibit 9 dated March 25, 1921. I wrote the letter on that date and that is my signature. I also wrote the postscript on this letter "Also one print sketch No. 521." I 1328
have a print of the drawing that was sent to Mr. Clark. It is the print included in Exhibit 9.

Q108. What is this paper that I now hand you? A. That is the tracing from which this print was made.

Q109. Is that paper which you have referred to as a tracing the original drawing or traced from something else? A. That was traced from the original drawing.

Q110. Have the original drawings been preserved? A. If so, I do not know where it is.

Q111. What was the practice of the 1900 in 1329
that respect? Was it the practice to retain the original drawing after a tracing such as this one was prepared from it? A. Yes, they were always, as far as I recall, retained.

Q112. Is it possible to find that original of that drawing here? A. I do not remember that I have seen that original drawing since that time.

Q113. What was this drawing prepared from? A. It was prepared from the model itself.

Q114. Does it accurately represent the construction of the model? A. It does, except that it shows a rack and pinion drive which, to the best of my recollection, was not used on that ma-

1330 *Herman W. Doughty—For Defendant—Direct.*

chine. I put on the title of the drawing, name of the company and date, and the names of the various parts, together with arrows pointing these parts. "Washing machine with submerged agitator, 1900 Washing Company, Binghamton, New York, March 22, 1921," I wrote that on there on March 22, 1921. The application for patent was later prepared by Mr. Clark and I signed it. This patent issued on that application is Defendant's Exhibit 5. Such parts as now
1331 exist of the original model agree with the parts shown upon this tracing, shown in blue print in Exhibit 9, and the tracing was made from the model Exhibit 8.

As to what parts there are in the model that do not appear in the drawing, the cover of the tub does not appear on the drawing. There is a cover on the exhibit which did not exist on the model. The pulley which is attached to the bar at the side of the tub and the pulley at the center underneath the tub and the pulley on the cover of the tub were not on the original model.

1332 Referring to the vertical steel strip with two parallel pulley wheels on the top and two parallel pulley wheels on the bottom, that is one of the parts which was not on the original model and does not appear on the tracing. The strips were built to show a scheme of driving the agitator. They were applied, according to my best recollection, after the model had been used for its original purpose of this submerged agitator, after this print was made.

(Stipulated a photostatic copy or a blue print copy may be furnished in lieu of the original.)

Following March 25, 1921, the work was begun in relation to placing the machine in commercial shape, that is, parts of such form as to make up a machine which would have a suitable appearance and performance, drawings were prepared, patterns made, tools were made and the work of preparing the machine for market was proceeded with.

The drawings were made in the engineering department principally by Green and Wooster, although others of our force may have done some work upon them. They were made under my direction and such changes in parts were made as our tests had indicated would be desirable, and such suggestions as others in the organization made which would better the construction. It is my recollection we made a few complete machines from master patterns and these machines were placed in actual use to determine whether the machine would be satisfactory in actual use. It is my recollection that following the production of these few machines, a quantity of machines were constructed from the tools and patterns which had been produced to go out for a more extended trial in the field. Perhaps, it is my recollection, there were three or four of these original machines produced and perhaps 25 or such a matter of the first lot of machines, although I am not too sure of these quantities.

Work for the preparation of these working drawings began within a very short time after the tests of February and the correspondence with Mr. Clark and his visit and proceeded steadily after the day it started. I have examined the working drawings from time to time and recognize them as working drawings for the

production of the machine I have referred to. I do not recall any notations placed on these drawings by me. My initials appear under the word Approved in my handwriting on the group of drawings submitted and commented on by Mr. Green, on the one entitled Connecting Rod Clutch Lever dated May 3, 1921. Also on the one entitled Thrust Plug dated May 27, 1921, and also on the one entitled Shaft Bushing May 21, 1921. The same is true of the next one, Worm Gear
1337 Casting, dated June 17, 1921, and numerous others of the drawings in this group, also on sheet showing Shaft Tube Casting dated December 22, 1921.

Where no initials appear under the word Approved, the approval was not insisted on and very often drawings were made which I saw and had something to do with the production of them, but did not affix my initials to them.

I saw all these drawings and I participated very intimately in originating the design that is depicted on these drawings. It is largely my own
1338 thought.

Mr. Edmonds: There are so many of these drawings, I am not going to offer all of them in evidence, but I do offer the following: "No. 802 Gear Case Casting April 7, 1921, another part of the same casting labeled Gear Case Casting Sheet No. 2 April 7, 1921, Connecting Rod Clutch Lever No. 814 dated May 3, 1921, Gear Case with revision dated June 24, 1921, No. 802, Tube Packing dated July 11, 1921, No. 845, Drip Pan September 13, 1921, No. 804, Chain Hook dated October

3, 1921, No. 861. I request that these be received in evidence collectively and marked. Defendant's Exhibit 15. Blue prints of these will be substituted for the originals in accordance with agreement between counsel.

Referring to the second group of drawings which were shown to the witness Wooster, my initials appear under approved in my handwriting on certain of the drawings. 1340

Mr. Edmonds: I offer in evidence two of the drawings from this group, one being the drawing representing a part designated Base and dated August 19, 1921, No. 801, and the other being a drawing referred to by the witness Wooster as a drawing on which he himself wrote Submerged Agitator and certain other data, these two to constitute Defendant's Exhibit 16, and blue prints of them to be substituted for the originals in accordance with counsel's agreement. 1341

This drawing of the base in Exhibit 16, shows the platform on which the tub sets.

This other drawing shown me is a combined elevation in section of the complete machine in its final shape. It is commonly designated as an assembly drawing. I do not think that I personally worked on that drawing but it was made under my direction. I saw it from time to time during its preparation. I do not know who made the drawing. I know it was made under my direction because I recognize the drawing from

familiarity with the different parts. Titles and space for draftsman's initials were almost without exception used for detail parts but we did not have any on a drawing of this size. Perhaps I would state it better that a drawing of this size made of assemblies were not used throughout the shop and did not have quite the same function that the individual drawings had, and sometimes the title was omitted from them. I recognize the drawing as one that was made at
1343 approximately that time and shows the construction of the machine as an assembled drawing does show it. I believe this drawing was made after the final form of the machine was determined. After the preparation of the other drawings to which I referred.

From the drawings, patterns were made, and when the machine was new, most of the parts whatever they were made from, either casting patterns or from stock materials, such as bar stock and other material, would be made up, naturally without production tools. That is, they
1344 would be made by perhaps the experimental department or the tool room, laying them out individually and in fact a hand made product, following the dimensions, however, laid down on the drawing. Later, production tools would be made, from which duplicate parts could be made at a very low labor cost.

I find an entry in my diary of April 19, 1920, stating "Casting of base from master pattern received." I am certain that date should be April 19, 1921. It is immediately under the date of September 16, 1920, and I know from other information that the master patterns were not made on April 19, 1920, but I am certain they

were made on April 19, 1921. That note is in my handwriting.

I have an entry here under date of August 10, 1921. "First machine made from master patterns returned from about one week's use by customer for trial."

That entry is also in my handwriting, and was made August 10, 1921.

This is in relation to a few machines which were made up for preliminary testing and shows the return of one of these machines from such 1346
a test.

It was common practice of the company to put out new machines on test to find out if the machines would stand up in use under actual working conditions.

I have on this same page a note under date of August 23, 1921, that a "Trial with aluminum plate agitator and wooden vanes requires 240 watts."

(Assembly drawing offered in evidence as Defendant's Exhibit 17, and a blue print to be substituted for the original.) 1347

The photograph shown me is of one of these Whirlpool machines. I could not say definitely when it was made, but it was in a file which I kept in my desk, under the subject of this machine. It shows accurately the machine that was made at that time.

(Photograph offered in evidence as Defendant's Exhibit No. 18.)

I found the photograph of this machine in the desk when I used it. It has since been removed to a filing cabinet in the same room. I

asked the representatives of the 1900 Company for permission to look there and found the photograph.

Following the testing of certain machines in Binghamton for periods of a week or more, as I have just stated, the machine was put into production in the factory and began to go out in the regular course of business. I don't remember anything in particular about that except that was the case that they continued to be made for
1349 a time and later were discontinued.

It is my recollection that the machine began to be shipped out the latter part of 1921 and continued possibly for something over a year. I would think that the quantity was somewhere between 500 and 1000.

The machine marked Exhibit 4 is one of the machines that I have described which was sold by the 1900 Company, in the period I have just referred to. It doesn't differ from them in any respect as far as I can see, except some of the machines had a simple switch where this one
1350 has an overload switch on the wringer column.

The other one is shown on Exhibit 18.

The oscillating rotary element within the tub of the machine is representative of the form in which the oscillating rotary elements were made in the machines which were sold in 1921 and 1922.

I observed that the vanes in Exhibit 4 were arranged at regular intervals for a considerable space around the center and then there is a wider space. That is representative of the form in which these oscillating members were made and sold; that is the way they were arranged.

The disc in Exhibit 4 is an imperforate disc.

That is true of the machines made and sold. I used such a machine in my own home for quite a length of. time. It was a very satisfactory washer. As so used, the oscillating rotary member was driven by power and by a shaft coming up through the tub as in that machine.

Q192. With reference to that machine which you operated in your own home, and in others of these machines that you operated or saw operated, will you state the nature of the flow which the water took within the tub during the 1352
operation? A. With a tub of water only and the agitator in motion, the water would flow from a point at the center of the agitator along the surface of the agitator to the sides of the tub, and then upwardly to the surface of the water, in towards the center and down again toward the center of the agitator in general. That flow of water just described would be modified by the omission of vanes on the agitator, so that a greater flow of water would take place toward that side of the tub, which was opposite what you might call the mean position or the average 1353
position of the portion of the agitator on which the ribs still existed, and the flow of water would be somewhat displaced from the center on the side opposite from the point where the greater number of vanes were. Of course, the flow of water is not directly outward and directly upward on account of the oscillating motion of the agitator. It necessarily goes up somewhat in a spiral manner when it strikes the walls of the tub, because the agitator is moving all this time, and this motion starts and stops with a starting and stopping of the agitator, and of course the agitator reverses and,

therefore, this flow is intermittent and the spiral action of the water is reversed with the reversal of the agitator. Now, when clothes are placed in the tub, the water action is not greatly changed from what I have described as long as very few clothes are used, but it is gradually dampened and slowed up so that its amplitude is very much less as the water begins to be more fully filled with clothes. I remember, I think a three page folder, which showed a picture of the ma-
1355 chine and a description of it, and also one of the general catalogs showing other models, showed this Whirlpool. I have tried to find them but cannot.

I have seen the tally book, defendant's exhibit 11, but had no occasion to use it. It was one of the records of the 1900 Company. I knew they had books of that kind in which serial numbers were entered, and in which dates were entered. Personally, I cannot recall that I had a record of serial numbers assigned to different models of machines, but we assigned numbers
1356 to different models.

As to what other designation was applied to the Exhibit 4 type of machine, it was called submerged agitator and also to a limited extent Form 4.

Exhibit 12 is a cut of the machine which uses the multivane agitator and of the high post type. It is a machine which was made subsequently to this Whirlpool, and put out by the 1900 Company over a period of years while I was in the employ of the company. I am familiar with it and have operated machines of that type and seen others operate them many times.

Describing the course followed by the water

in the operation of the tub of the type shown on Exhibit 12, with the tub with water only, when the agitator is set in motion, the water flows outwardly along the upper surface of the bottom of the agitator. The agitator is close to the bottom of the tub. That flow of water goes out radially until it strikes the side of the tub, then upwardly to the surface of the water, inwardly towards the center from the inner surface of the tub and then down at the center to the upper surface of the bottom of the agitator, and 1358 repeats that, and as the agitator keeps in motion, the flow of the water is, or the paths which I have just indicated for the water are modified to some extent by the fact that the motion of the agitator is intermittent or oscillating and that, while these currents are also flowng upwardly, they are also flowing around the tub, so that the motion has become somewhat spiral in direction, and also from the fact that the agitator motion is a reversing motion, the motion of these spirals or direction of these spirals reverses, and the flow of the water that I first 1359 indicated is intermittent corresponding to the motion, reversals of the agitator.

The action in this machine which I have just described, shown on Exhibit 12, and the action of machines of the type shown by Exhibit 4 the Whirlpool or Model 4 machine in character is identical. The form 4 Whirlpool machine has a tub which is much larger than the tub of this Exhibit 12, and the speed of the agitator was slower so that the water action was less rapid than in the machine of Exhibit 12. The paths were practically identical and the reversal of

the agitator and consequent action upon the water was practically identical.

I cannot recall how many vanes appear on the agitator of the Exhibit 4 machine. Looking at it, I find six vanes. The 1900 Company in types like Exhibit 12 usually had three vanes.

In the form 4 the vanes reach farther out towards the wall of the tub, that is, radially they extend farther out towards the wall of the tub than they do in this Exhibit 12. As to what
1361 results from that with respect to the thrust of the vanes on the water in the form 4 machine, that makes the vanes, being farther out, naturally travel a greater linear distance in the arc in which they are travelling than they would if they were nearer the center.

The normal load of clothes for Exhibit 12 was about six pounds, preferably less. In a machine such as shown on Exhibit 12, with a normal load of clothes, that is if you say 6 pounds of clothes in a machine of that size, the tub is well filled with clothes, that is to the water line, and
1362 when the agitator is in motion, the current of water which I have described in connection with these machines takes place, and the clothes and water are both thrown out at the bottom towards the outside of the tub and follow the circulation which I described in respect to the water, except at a slower rate, depending upon the proportion of clothes and water. Of course, with respect to the contact of the agitator with the clothes when the load is as great as that, the clothes are acted upon directly by the agitator and depending upon the shape of the blades or vanes are sometimes pulled around by the agitator.

Q219. In describing the water action that takes place in the machine, you spoke of a downward movement of water at the center. What effect does that downward movement of water have upon the clothes at that point? A. The clothes go down in the neighborhood of the center of the agitator. This agitator has a central post and the clothes go down along that center post, and of course, on account of the quantity in the tub, being practically filled with clothes, while some of the clothes go down in the center, other 1364
clothes go down a little distance away, and these clothes change position from time to time, but that is the general action.

The clothes which are in contact with the agitator follow the post down and remain close to the agitator until they get down to where the vanes reach out and there they are carried out along the bottom of the tub at the top surface of the agitator. Of course, all the clothes which are being acted upon do not perhaps contact the agitator on that trip. They may contact it when they circle around again. 1365

As to whether the clothes that are moving down toward the bottom of the agitator over the sloping surface of it are engaged by the vanes that depends on the construction of the vanes. I think they are always, any of the clothes which descend along the center, are always contacted by the agitator. If the agitator has well rounded corners, they may not be snatched around by it, but again that depends on the amount of clothes to some extent. What I am trying to point out, it depends somewhat on the shape of the corners of the blades of the agitator as to whether the agitator will actually seize the clothes and pull

them around with it. If that corner is rather abrupt, the clothes are apt to be pulled around. If they are not very sharp corners, the clothes may slide off from the edge and not be pulled around.

I have seen agitators of machines of this type, like Exhibit 12, which have been used for a considerable period of time. On any agitator that has been in use for a considerable period, I have seen evidences of wear on the projecting
1367 edges. The edges are usually polished, at least if not polished, brighter than the surrounding portions, the neighboring portions of the agitator. Sometimes they are even worn to quite a sharp edge, especially such agitators as do not have a round bead around the edge of the vanes. I have seen agitators without the beading in which the edge of the vanes were almost to a knife edge from the action. Of course, that I believe is due both to the action of the clothes and to possible chemical action from strong washing solutions, and although if strong solutions
1368 are used, they have an opportunity of getting on the agitator, the fact the blades are sharp I attribute to wear against the clothes.

I have seen agitators which were worn through the metal from what I believe was a combination of these two actions.

It is difficult to discriminate between the removal of metal by chemical action and removal of metal by wear, because these actions occur simultaneously. While the removal of metal by chemical action would naturally leave a rough surface, if it occurs simultaneously with the removal of metal by wear, it is difficult to distinguish between them. However, when chemi-

cals are used in a washer, owing to the violent disturbance of the water, they are distributed equally throughout the water and, therefore, would act equally on all portions of the agitator. Since the outside of the agitator blades are the places that show the greatest removal of metal, it is evident that the removal must largely be due to wear in addition to the chemical action. 1369

Where the agitators have a bead, the wear exists but there is more metal to take it and they do not ordinarily get into such sharp knife edge condition. I have seen such beaded agitators which have been in use a considerable period in washing machines and which disclose evidences of wear at numerous times. 1370

I had something to do with the design of the agitators made by the 1900 Company for machines like Exhibit 12.

Cross Examination by Mr. Lane:

The tub in Exhibit 8 might easily have been the original. Since it was made it has been among the 1900 models. I cannot be very definite as to when I saw it last but I have seen it from time to time. I believe it is the first machine. Of course I could not say that someone might not have duplicated it, and I cannot say that that was the original tub. I would say that this large print (Defendant's Exhibit 17) was not made last week. The large print has not been in my possession since that time. I could not say when this print was made without qualifications one way or the other. I see in the paper on which it is made an appearance which is identical with the drawings which were made at that time. 1371

I recognize in that drawing a drawing of the parts which constituted that machine. To the best of my belief I know when it was made within a reasonable time. If you mean this drawing might have been counterfeited, it might. It might have been made three years ago as well as six years ago. I connot say positively because I have not had that sheet in my possession. It might not have been made in the 1900 place three years ago because we did not use paper
1373 of that kind. That paper is yellow with age. It is the same kind of paper used in the other drawings. That is one of the reasons I believe it was made then, also the character of the drawing, the style of it, all lead me to believe it was made when the other drawings were made.

XQ259. When it comes right down to the fact, you are led to believe but you don't know? A. I don't know what this know business means. I am at a loss to understand.

XQ261. What is the rate of speed at which the model 4 Form 4 washing machine oscillated? A.
1374 The oscillations are at a rate of 40 per minute, complete oscillations.

XQ262. What is the rate of speed at which the one shown on this Exhibit 12 oscillated? A. I think that oscillated at 60 per minute.

The model Form 4 was abandoned for commercial reasons as far as I know. They made somewhere in the neighborhood of 700 of them.

XQ267. As a matter of fact, what you did when you changed from the Form 1 machine to Form 4 machine was to turn the agitator bottom side up and leave off three or four of the rubbing elements? A. Generally, yes.

XQ268. Instead of having ten of the rubbing

elements on there, you had six? A. Had six, yes.

XQ269. Unsymmetrically arranged? A. Yes.

XQ270. And except for the reversal of the movement of the water in the tub and the rubbing action, the two machines were substantially the same, were they not, in so far as carrying out the washing operations is concerned? A. Yes, I think so.

My letter to Mr. Clark of March 23, 1921, and the blue print and letter of March 25, 1921, was 1376
intended to supply as full and complete a description as we had of the device and its operation at that time, to enable him to make a patent application. It was intended to make as complete disclosure as we could at that time of the machine and its operation.

Referring to the difference in dates in my note book, it is not clear to me why I should put down 20 instead of 21. It couldn't have been 20 and was meant to be 4/19/21. It couldn't have been 1920 because we did not have the casting at that time. It is a mistake of a year if my 1377
personal impression is correct.

XQ280. In the use of this machine shown in Exhibit 12, the washing is carried out by the action of the water being forced vigorously through and around the clothes, is it not? in opposed directions in that type of machine? A. If I understand you correctly, it is.

XQ281. And you have the wide blades and the rapid rate of rotation in order to get a thorough forcing of water through, about and around the clothes in opposed directions? That is the purpose of the speed of agitation and the size of the propellers? A. Of course, the diam-

eters of these agitators are much less than the older forms and, therefore, they have to go faster in order to displace the same amount of water in a given time and of course, the agitation of the machines has been increased.

XQ282. Very substantially increased? A. Yes.

XQ283. And that increase is due to the size and shape of the blades and the rapidity with which they are operated? A. Yes.

In this machine the blades are of substantially
1379 the same height and lateral area as Exhibit 12. They are approximately 2½" high at the outer end and reach up the post. That post is approximately 12" high and they reach up ¾ of that distance.

XQ285. And with this thorough agitation of water, first in one direction and then in the opposite direction, the currents meet and cause a thorough cleansing of the fabrics in the action of the water, is that correct? A. If I understand you, it is.

XQ286. You say you have no drawing what-
1380 ever of the first model you made? A. No, we haven't.

XQ287. Of the No. 4 machine? A. No.

I would have expected those drawings to be put with the others, although our drawing room has been shifted around since that time. The earliest drawing I have been able to find was this produced in connection with the exhibits here, and I have made a thorough investigation.

XQ291. Did you yourself find that drawing we had the discussion over when I first started to examine you, or where did that come from? A. I have seen it from time to time.

XQ292. It was shown to you after you ar-

rived here to testify? A. Oh, I have seen it before that time.

XQ293. But I say you did see this drawing since you have been here? A. Yes.

XQ294. It was called to your attention before you testified? A. I looked it over, yes.

As to the largest production for any given day that we had while I was with the 1900 Company, of washing machines, we reached a production of about a machine a minute. I was more impressed with the rate of production than I was 1382
with the total at that time. It seems we reached a production of about 600 machines a day. At that rate we had just about one day's production of No. 4 machines. I think the sale of these machines went over into 1923. It was the Fall of 22 when they began to be produced, and it was my impression they sold them and the quantity increased and then decreased again, speaking about the Form 4 machine. It is my impression they began the production in 1922 and then went to larger production in 1923. I thought you were referring to the rate of production. I really 1383
don't know in which year most of them were made. It is my recollection they discontinued making the Form 4 machine in 1923.

We had some of these machines returned, not a great number. I wouldn't think more than a dozen of the whole number. I think that would be a large estimate. They are no longer on sale, or anything like it.

I have seen machine Exhibit 12 operate a great many times, operated them, but I did not see the bottom of that machine when it was filled with clothes in operation, but we had a glass tub model in which you could observe the mo

tion of the clothes. The machine I operated at home was not this model. I never had one of this model Exhibit 12 at home.

XQ312. But the Form 4 machine you did have at home? A. Yes.

XQ313. You never had any glass sides for that one, did you? A. No.

XQ314. So you couldn't see what the flow of water was in that machine when filled with clothes? A. No, only as the clothes disclosed
1385 it.

XQ315. You did know the clothes were rubbed in that machine? A. Oh, yes.

XQ316. No question about the fact they rubbed on the agitator? A. Yes.

XQ317. That was true of the earlier Form 1 machine? A. True of all the machines as far as I know.

At the present time I am connected with the Norge Corporation at Detroit. They are manufacturing washing machines. They have a center post agitator similar to this Exhibit 12. I do
1386 not know whether they have made application for license to the Maytag Company in connection with some of these machines or parts of it.

I have been in conference with Mr. Edmonds and Mr. Free concerning my testimony since I came here. The conference was at the hotel rooms.

I was subpoenaed after I came. I live in Detroit and they served a subpoena on me after I arrived in Binghamton. I was advised they were going to subpoena me. I didn't know that they couldn't subpoena me in Detroit and have me come over here. What actually happened was that I was notified and asked to come over here

and they said they were going to subpoena me and they did subpoena me when I got here. They paid me $1.50, that is the usual charge. They did not pay me anything for transportation but I expect to be paid for my time and transportation. There wasn't anything said, one way or the other. We have a patent department there at the Norge and they know all about this. I depended upon them to make all the arrangements.

Re-direct Examination by Mr. Edmonds: 1388

I talked with Mr. Mason at Detroit before I came over here. I talked with him freely about my recollection of the history of the Form 4 machine.

The production of 600 washing machines a day by the 1900 Company, as I recall it, was in 1933.

The plant in 1922 or 21 was of the same size as in 1933. The facilities for manufacturing then were quite different.

There is a second plant of the company at 1389
St. Joseph, Michigan. We did not have that in 1921 or 1922.

RDQ348. Can you say about how many machines the company could have turned out in 1921 or 1922? A. I found something in my memoranda here, something on that. I don't find it right now, but we were producing about 50 machines a day, and have sold 100 machines a day. That was 1919 when I first came referring to the Cataract. The Cataract machine continued to be the principal product of the company as far as washing machines are concerned through 1919, 1920 and 1921.

The facilities of the company have grown steadily from 1919 to 1933.

The bottom of the tub, Exhibit 8, is constructed of sheet metal having eight ribs running from the center to near the outside, provided with a drain and apparently a piece soldered on to the center about 2½ inches in diameter. If this tub is the tub which was used in the original model, it would be necessary to have a hole through the center through which
1391 the drive shaft could enter the tub. I believe that a piece has been soldered in there closing the hole. Somebody said something about that a day or two ago I remember, when I was talking to you, but I cannot say whether I said that that was my belief at that time. The tub has nothing about it which would prevent its being used for the purposes of the original model of the Form 4 machine as far as I can tell.

At the time these tubs were made and sold, in machines of the 1900 Company, the tubs were manufactured by the 1900 Company. I had noth-
1392 ing to do with making or designing them. I would say the effect of these shallow corrugations in the bottom of the tub was purely psychological. People sometimes thought the ribs were necessary and the ribs were sometimes put in to meet that opinion. I don't know that they serve any purpose unless it might be to stiffen the bottom of the tub. I would expect that they would have a slight beneficial effect to stiffen the bottom.

Referring to my note book and the entry of the start of the work on this Form 4 machine in the latter part of 1920, there is an entry or two relating to a test in 1921. The date of the

incident I referred to where the machine was used by a customer for about a week was August 10, 1921. The production and sale of the machine began in that same year and continued into the next year. The manufacture and sale of these machines was in the years 1921 and 1922. I remember I said it was 22 and 23. I now say without any doubt whatever, it is 21 and 22.

I do not believe I could state positively who the first machines were sent to, that is those sent out commercially.. 1394

(Sheet from the note book of Mr. Doughty offered in evidence as Defendant's Exhibit 19 and a photostatic copy substituted therefor.)

Re-cross Examination:

Using the No. 4 machine in our own home, I would say that it took about 10 or 15 minutes to wash clothes that were ordinarily soiled, white clothes possibly. I could refresh my memory. 1395
There is a test there. It takes about half the time in the machine of the type Exhibit 12, to wash as compared with Exhibit 4. Washing a full tub of clothes the old No. 4 machine took about twice as long as it took to wash the same amount of clothes in this Exhibit 12 machine.

Re-direct Examination:

The Exhibit 4 machine would wash in one batch about 50 per cent. more clothes than the Exhibit 12 type.

1396 *Herman W. Doughty—For Defendant—Re-cross.*

Re-cross Examination:

RRXQ378. When you say 50 per cent. more clothes, what do you mean? A. I mean dry weight of clothes, 6 pounds dry weight for a load in this one and 9 pounds for the load of the No. 4.

RRXQ379. Take 12 pounds of clothes and use the machines at their normal rate, how much faster would you wash this 12 pounds of clothes
1397 with one like Exhibit 12 as compared with the other? A. The actual washing, Exhibit 12 would probably wash in half the time.

(The foregoing Depositions of Thomas W. Behan, George L. Davis, Robert D. Quinn, William Green, Vernon J. Wooster and Herman W. Doughty, offered in evidence as Defendant's Exhibit E.)

(Marked Defendants' Exhibit E.)

Mr. Edmonds: These Depositions were taken in the Easy case and in the Brooklyn-Edison case at the same time, and
1398 there is a stipulation that makes them admissible with the same effect in the Hurley case.

Mr. Edmonds: I offer all the exhibits that were mentioned at any point in any of these Depositions. I suggest that they be given in this case the same numbers that they were given in the other case. I will offer separately and individually the 1900 Form 1 machine, identified as Exhibit 2-A in the Brooklyn-Edison Case, and ask that that be Exhibit 2-A in this case. The Exhibit 3 in these Depositions

1399

is the Davis patent, No. 1,240,826, the copy of that is included in the book of patents so that it is not offered again. The 1900 Form 4 machine, Exhibit 4 in the Depositions, is offered in evidence as Defendant's Exhibit 4. The Doughty and Davis Patent No. 1,496,305, offered in evidence as Defendant's Exhibit 5, and copy of that is in the book of patents offered here.

Defendants offer as Exhibit 6 a copy 1400
of the Davis Patent No. 1,748,442.

Defendants Exhibit 7 is a sketch made by the witness Behan.

A model of the original Doughty and Davis machine offered in evidence as Exhibit 8.

Sheaf of papers relating to the development of the Doughty and Davis machine offered in evidence as Exhibit 9.

Certain license agreement offered in evidence as Exhibit 10.

Certain pages of tally book of the 1900 1401
Company offered in evidence as Exhibit 11.

Circular of the 1900 Company's Model 400 washing machine offered in evidence as Exhibit 12.

Certain invoice relating to the sales of two Form 4 machines offered in evidence as Exhibit 13.

Certain other invoice for three Form 4 machines offered in evidence as Exhibit 14.

Eight blueprints illustrative of the construction of the Form 4 machine offered in evidence as Exhibit 15.

1402

Two blueprints relating to further features of the construction of machine offered in evidence as Exhibit 16.

Assembly drawing of Form 4 machine, offered in evidence as Exhibit 17.

Photograph of the Form 4 machine of the 1900 Company offered in evidence as Exhibit 18.

Leaf from Doughty note book kept by the witness Doughty offered in evidence

1403 as Exhibit 19.

(Marked Defendants' Exhibits 2-A and 3 through 19.)

Mr. Edmonds: Defendants also offer in evidence copy of the depositions of the witnesses Osgood and Wensley, and these two witnesses were examined in the course of the trial of the Brooklyn-Edison suit and there has been a stipulation in these cases, it has been stipulated in these cases that these two depositions as given at the trial may be received here with the same

1404 force and effect as if the witnesses appeared and testified, so those copies of those two depositions are offered in evidence as Defendants' Exhibit.

Testimony of LAURA WENSLEY, from the Maytag vs. Brooklyn-Edison Company Case, offered in behalf of Defendant.

Direct Examination by Mr. Edmonds:

My address is Syracuse, R. D. 3. I have lived in Syracuse about thirty years.

1405

I was married to Mr. Wensley in 1924. I bought a washing machine from Mr. W. A. Osgood of Syracuse.

(Witness identifies her signature on paper marked for identification, as Defendant's Exhibit 101.)

I gave an old washer in addition to the money specified on the paper for the new machine. I got that old machine at Osgood's in 1920, around January 1, 1920. I got my house just 1406
five months before and the washer came up on January 1, 1920. On that day Mr. Osgood did my washing for me, at our house. That was at 302 West Newell Street, Syracuse. I think there were four tubs full.

(Paper marked for identification, Defendant's Exhibit 102.)

As a result of this demonstration on January 1st, I took the washer. That's my signature on Defendant's Exhibit 102. It was my maiden name, C. B. Raber. I used the machine after that 1407
demonstration mostly every week until I got the other machine. That is until the date of the paper marked for identification 101 which is dated October 12, 1931. Going back to January 1st, 1920, from which date I used the machine, our home at that time consisted of two people. Once in a while my mother would bring her washing down and I would do that. I did all my table linen, table cloth, napkins and white clothes and sheets. Then I would put in the colored clothes. I would put in the shirts and stockings.

Q43. By the way, which ones went in by themselves in one batch and which ones went in by

themselves in another batch? A. I put in my table cloths, and then I would put in the napkins, and that would do the wash.

Q44. That would be one washing? A. Yes, then I would put in two sheets and a few pillow cases.

Q45. That was a separate batch? A. That was a separate batch. And then I would put in the shirts, that would be a separate batch, and then I would put in the stockings last.

1409

(The machine in the room shown the witness marked Defendant's Exhibit 103 for identification.)

The machine is a 1900 Washer and I know it by the number 113. That machine was in my cellar in 1920 and from then on until I got my other washer, the one that was purchased by me as shown on the paper, Exhibit 101 for identification. I washed the top of the tub as well as the inside of the tub, always wiped it out. That is when I saw the number on the machine (Re-

1410 ferring to Defendant's Exhibit 103).

I never had a clothes stick and I never boiled my clothes before I got the washer.

Cross Examination by Mr. Lane:

I think I traded this washer for the new one about three years ago.

Mr. Edmonds: I offer in evidence the washing machine as Defendant's Exhibit 103.

I think the last time I had Exhibit 103 in my possession was three years ago. Mr. Osgood's man took it and I have not seen it since. When I traded it in I got a Speed Queen. I don't know

who made it. I couldn't say whether it was a Barlow & Selig. I am sure it was not a Speed King. It was Speed Queen.

Witness was requested to look at the circular marked Plaintiff's Exhibit 29 (Tr. Ex. 42) and stated that her machine was not like that one. The circular shows more of a square machine and mine is perfectly round. I think it has the same kind of agitator on the inside. I would not say it is exactly like it. I think it is something like it but it isn't the same machine. The in- 1412
side of my machine, my new machine, is round at the bottom, has no corrugations in it, it is perfectly smooth. At the bottom of the tub is an outlet where the water goes. The thing in the center swish-swashes around. I don't know who made it and I haven't looked to see if there is any number on it.

Referring to Defendant's Exhibit 101, and the statement thereon, "Manufactured by the Barlow Selig Manufacturing Company," that does not help me to fix the person who manufactured it. I don't think I knew that was on there when 1413
I bought it. All I know, I got the washer and I liked what it did, and that was all there was to it.

It is quite different from the operation of the previous machine. I thought it would do a lot quicker wash, but it did not. I didn't get the other machine back because I didn't know where it was. In using the old machine it took about an hour to do the wash. I put in four batches. I did my linen first, sheets next and then colored clothes and the stockings last; and that took me about an hour. I left the sheets in fifteen minutes and I took fifteen minutes for

each time I got the clothes in the tub. I timed it. I use the new machine about fifteen minutes for each batch. I used it the same time as the old machine. I did not try to use it a shorter time because Mr. Osgood said to leave it in about fifteen minutes. That is what he told me when he sold it to me. Unless I got dirty shirts, where the cuffs were dirty, and I put it in again. I have always done that.

I have never used a wash board in any of
1415 these machines. I never had one; never used a clothes stick.

I did not rub the dirty parts by hand. I always scrubbed a little soap on and put them right back in. With the old machine, like 103, I did not put the clothes back after I washed them until just towards the last when I thought the washer wasn't doing what it ought to do. The clothes I put back, I just washed with the other clothes fifteen minutes. I did not put them back a third time. The shirts were the only things I had to put back, they were for a rail-
1416 road man, and were dirty. The overalls were in for thirty minutes, it was really good, they were very dirty. Some of the clothes I washed twenty minutes, the dirty overalls and shirts, and the shotest time with the others was fifteen minutes. I never used a shorter period of time than that.

To raise the cover of the old machine, you unscrew it and pull the top up. You put the clothes in and fill the tub about half full of water, it is filled about eight inches from the bottom; I did not fill it any fuller than that. When the dolly goes down it pushes the water up, because it is heavy.

XQ141. So that this arrangement shoves the clothes back and forth, and that is what does the washing, isn't it? A. Yes, sir.

XQ142. And what are these corrugations on the bottom here for, did you notice what they did? A. They washed the clothes more.

XQ143. These eight corrugations on the bottom, they rub the clothes more, as you observed it? A. Yes, sir.

XQ144. When you ran your machine for fifteen minutes with the cleaner clothes, it was 1418
filled with hot water. A. Yes.

XQ145. And you set the machine so that the rub board rubbed the clothes back and forth, and the clothes were about eight inches above the bottom? A. Yes.

XQ146. Now then, you operated that for some fifteen minutes that way—rubbing the clothes by the machine going back and forth? A. Yes.

XQ147. So that dolly engaged the clothes all the time that it worked? A. Yes.

XQ148. I will ask that question; did you ever operate this thing in washing clothes with the 1419
cover open? A. What good would it do?

XQ149. It wouldn't do any good, would it? A. No.

The water I put in the tub was generally boiling and I put soap in it.

XQ154. And after you have operated it for fifteen minutes, will you show the Court what you do next. A. I open the tub (indicating).

XQ155. You did that by pulling the iron device with the two pieces on it to swing the cover open and draws up the rub board? A. Yes.

Then I moved my wringer over and took out the clothes and ran them through the wringer.

Many times it was too hot to pick them out from the hot boiling water. Then I would let them drop in another tub.

I always looked at the shirt bands and I ran some, the seconds, again after they had had fifteen minutes. Then, after I wrung them out, I looked at the shirt bands and picked the shirts out and put them back in the tub with the next batch of washing.

When I got them into the boiling water, I
1421 moved the wringer slightly to one side and lifted the dolly by the finger piece, and swung the cover to a closed position and then I was ready for the second batch. You have to lift the center post before you can raise the cover at all. I did not find any trouble with it because I did not know anything that was better, but I don't have to do that with the new machine. That's a great help.

XQ173. Now you spoke about rubbing—that is the reason that these vanes are so smooth here (indicating)? A. Yes, sir. You see, if the
1422 clothes rub around here they would be all black.

XQ174. What is that? A. I say if the clothes rubbed around here they will be all black.

XQ175. They did not rub around? A. No.

XQ176. The idea of what you mean is this, that the shaft that slides up through is oiled all the way up, with grease, and if the water is not down to eight inches from the bottom, the water would get greasy? A. Yes.

XQ177. And it would not do to have the water all the way up in the tub? A. No, sir.

The circular called the Speed Queen shows a machine like the one I bought three years ago from Mr. Osgood.

(Circular offered in evidence as a Plaintiff's Exhibit.)

The Court: I will exclude it and you may mark it for identification.

(Marked Plaintiff's Exhibit 125 for identification.)

Testimony of WATSON A. OSGOOD, from the Brooklyn-Edison case, offered in behalf of defendants. 1424

Direct Examination by Mr. Edmonds:

My residence is at Syracuse and I have lived there since 1911.

My business is washing machines, which I entered August 1, 1911. I bought out the branch office of the 1900 Washer, and went into business for myself at 908 South Salina Street. I have been there continuously since 1911. I sold 1425 1900 washers for several years. As to the machines made by the 1900 Company, which I sold in the year beginning 1911, I sold the Hand Gravity Washer. After that, Standard Electric. Then the Agitator Electric. The Agitator Electric was designated Form 1, Form 2 and Form 3. After that I sold Form 4 or Whirlpool. Form 4 and Whirlpool designates the same machine.

Form 1 Agitator Electric was a wooden tub washer with wooden legs, legs fastened to the side of the tub, swinging wringer.

Defendant's Exhibit 10 shows the 1900 Cataract, and there is in that Exhibit a picture of

1426 *Watson A. Osgood—For Defendant—Direct.*

Form 1. That is the cut on the right of the second sheet.

(Witness identified a Form 1 Electric Agitator Machine in the courtroom.)

(Defendant offers this in evidence as a substitute for Exhibit 2.)

I sold this Form 1 Agitator Electric type starting in 1916 or 1917. I sold lots of them and
1427 got to know them pretty well. I demonstrated them myself.

Mr. Edmonds: I will offer in evidence this machine that we have here identified by the witness as an Agitator Electric Form 1 machine of the 1900 Company of Binghamton, and I will offer it as Exhibit 2, with the statement that in my belief it is either the machine actually offered in evidence as Exhibit 2 in the course of defendant's depositions, or one identical
1428 with it.

Mr. Edmonds: Suppose that we offer it as Exhibit 2-A.

(Said machine received in evidence as Defendant's Exhibit 2-A.)

I sold Form 2 Agitator Electric machines made by the 1900 Company of Binghamton, probably two years after the Form 1 started.

Defendant's Exhibit No. 10 has printed matter showing the Form 2 Agitator Electric machine on the left hand half of the third page; stating the difference between the Form 1 and the Form 2 Agitator Electric machine, the Form

1, the legs were bolted to the side of the tub and the motor is mounted on the bottom of the tub. Form 2 had a metal base with iron legs, and the motor was mounted on the iron base.

I sold the Form 3 Agitator Electric machines of the 1900 Company. They came along in a reasonable time afterwards. Defendant's Exhibit 10 shows a cut of the Form 3 Agitator Electric machine on the right hand half of the third sheet.

I participated in the sale of a machine of the 1430
1900 Company to Mrs. Wensley. I sold her one of the Form 3 machines. I made the sale on the first day of January, 1920. I demonstrated it on New Year's Day at her home. The sale was made that day. We never sign a contract until the sale is made. The date on the contract is the date that the sale was made.

Defendant's Exhibit 102 for identification is a conditional sales contract of the washer Mrs. Raber got at that time. I know her by the name of Wensley now.

The machine was left at her house and I saw 1431
it from time to time thereafter. We used to have belt trouble with that washer, and we would probably see her once in four or five months. I saw it at her house from time to time until I sold her the new machine and took the old one in. That was in 1931. I cannot tell the exact date. I probably saw it once a year.

In 1931 she was ready to buy a new machine and we sold her one. We applied the old washer on the new sale. We brought the old washer into the shop, put a new set of wringer rollers on it, tested it out, and took it down to my own home. We used it at home until last week, con-

tinuously from this time in 1931. Used it to wash clothes, the usual routine of family washing.

Defendant's Exhibit 101 for identification is a conditional sales contract for the washer which she now has.

(The two papers offered in evidence as Defendant's Exhibits 101 and 102.)

These papers came out of my file.

1433 The collection of papers handed to me are conditional sales contracts for the Form 3 washer. The first and last dates when sales represented by those contracts were made are February 7, 1920, and May 11, 1920. I know most of the people represented by those papers, and I made some of the sales and some of the demonstrations. All of these are Form 3 electric machines. These papers were taken from our files by myself.

(Group of papers offered and received
1434 in evidence as Defendant's Exhibit 104.)

When I was making demonstrations of the Form 3 electric machine and up to May 11, 1920, we would put in perhaps four sheets to get a load. We would divide the white clothes into two tubs because they seldom like to wash the table linen and that stuff with the bedding.

Then they washed the colored clothes, and then they washed their stockings and the real dark clothes together in the last lot.

I have weighed the clothes, but not lately. The ordinary sheet weighed about a pound and a half; therefore there would be about six pounds

to a load. In the demonstrations we put in different amounts. When we washed the colored clothes, it wouldn't be anywhere near a full load, perhaps three or four pounds. Bed linen would run about six pounds, but not necessarily always. It depended on how big the washing was. Sometimes it would be four or five pounds. When we got to the colored clothes, it would be around two pounds, washing the real dark clothes and stockings. We have always done that.

When I first got the 1900 washers, Form 1 1436
Agitator Electric, I counted the strokes to determine the speed of reciprocation of the agitator. When they first came out they had them speeded up to run about 60, and that continued for a short time, but we had to slow up the speed of reciprocation because the washer was running too fast, and it was costing us some free service that we wanted to get away from. I personally slowed up some of these Form 1 electric machines in the homes of the people to whom I sold them, by changing the pulley on the motor, and the 1900 Company did the same 1437
thing. The 1900 Company changed the pulley so that the machines I received were adapted to run at the reduced rate. They reduced the speed of the machines down to 40 on the Form 1 machines and the speed remained at 40. Forms 2 and 3 also ran at 40.

Defendant's Exhibit 10 contains a representation of the 1900 Company's Form 4 machine, referring to the cut at the right hand side of the last page. I sold those machines. I first saw a Form 4 machine at the 1900 factory in the fall of 1921. The company called several of us in to see this washer in the fall of 1921, and this

washer was demonstrated to the dealers. I sent them an order for three when I got back home and they were delivered to me. I received them in the middle of January, 1922. Mrs. Osgood sold one of the three to a personal friend of hers for a Christmas present and it was delivered the middle or latter part of January. It was sold to Mrs. H. P. Sidmond. I found in my files a sales slip for that Form 4 machine. The handwriting on the sales slip is Mrs. Osgood's, dated De-
1439 cember 5, 1921. I taught Mrs. Sidmond how to run the washer, at her home. I demonstrated the machine, and I saw the machine afterwards once a year until two or three years ago.

Mr. Edmonds: I will offer in evidence the sales slip of the Form 4 machine sold to Mrs. Sidmond as Defendant's Exhibit 105.

I traded that machine in, took it back, and sold it to Easy Washer Company. I can identify
1440 the machine. It is here in the room.

(Witness designates Defendant's Exhibit 4 as the machine.)

The 1900 Company always identified these agitator electric machines of the Forms 1, 2, 3 and 4 types by the serial number, and on different types of machines they would have a letter. When they first came out with the Form 1 they used just a plain number; then when they came out with the Form 2 and 3, they designated the Form 1, C, Form 2, U, and the copper tub N. They would have N, U, C for the Form 3;

N U for the Form 2; and C for the Form 1, which was in addition to the serial number. There is a serial number on Form 4. On the one in the courtroom, Defendant's Exhibit 4, it is right on the top of the wringer post, S1033. The S showed the type of washer.

(The witness examined Defendant's Exhibit 103 and stated that on the cover next to the gear case is NUC113.)

1442

The Exhibit 4 is the particular machine that I took over from Mrs. Sidmond.

I made sales of machines like that subsequent to the sale to Mrs. Sidmond, sold about twenty.

I discontinued the sale of the Form 4 machine. They redesigned the washer and made a single vane agitator, and the 1900 Company stopped making the Form 4 at the time. I went on selling the 1900 products for a short time. I sold the Agitator Electric Models during 1920 and 1921, Forms 1, 2 and 3. I started to sell Form 4 the very last of 1921, and then in 1922. 1443
I sold the Form 3 in 1920, the Form 4 in 1922.

Referring to Forms 3 and 4, all the clothes in a batch were washed and the washing was uniform throughout the batch.

I never used a clothes stick in demonstrations for any washing purposes. We have had to take the clothes out to feed the wringer, with a clothes stick. In the course of the demonstration I let the women do the washing. I never used a clothes stick or saw any woman using a clothes stick for any purpose other than taking the clothes out at the end of the washing.

Cross Examination by Mr. Lane:

Now I sell the Universal, the Savage and the 1900. I have been in the courtroom most of the time for the last four or five days.

I have records to show that I sold as many as twenty of these No. 4 machines. They are in my office in Syracuse. I have nothing here. I know that I sold twenty because I checked up the records before I came down here. I cannot say
1445 when I sold the last one. I cannot even give the year. I imagine they were abandoned in 1923 or 1924. I would not say.

XQ227. Now, when you say the washing operation was uniform throughout, what do you mean by that? A. It washes the clothes evenly all over.

XQ228. You mean to say there is as much washing on the inside of the bundle of clothes in the tub as there is where they engage the rub board? A. There was no dirty spots left in the washing.

1446

(Question repeated by the reporter.)

A. I cannot say.

XQ229. You don't know about that? A. No, because you cannot see inside of it.

XQ230. All you know is when you get through the clothes are substantially clean, that is all you meant to say, isn't it? A. Yes, sir.

I do not have a circular of the single blade machine put out by the 1900 Company.

I have sold some of the types shown in Defendant's Exhibit 12, entitled "1900 Agitator Washer, Model 400," have sold some that have

the same agitator structure and tub. I wouldn't dare say when they came out with them. My best estimate is perhaps four years ago. I don't know how many of them I have sold and have no idea. I would have to look up my records to tell whether I have sold as many as ten. We sell several hundred machines a year. We have been selling machines like those shown in Defendant's Exhibit 12 for the last four or five years. We have sold perhaps ten of those a year. I wouldn't dare to say whether the total 1448
was about forty or fifty machines of that type. That machine superseded the Form 4 machine. We have sold some second-hand Form 4 machines, when they bring them in and we rebuild them.

The Hand Gravity machine was a four-legged hand washing machine. It had cleats on the bottom, slats on the bottom of the tub. It was an oscillating machine.

Plaintiff's Exhibit 33 (Tr. Ex. 45) shows a Standard water power washer, or electric. I sold some of those machines for 1900, about 1911 un- 1449
til they came out with the other washer. In that machine, the tub had corrugations radially around the bottom of the tub from the center out. That tub was set on a rack or standard something like the stool or swivel chair. Then when they put the tub in there they put a disc arrangement with holes in it which had radially distributed rubbers on it on top of the clothes, and then they held that stationary, the upper member stationary, and oscillated the tub, so that the clothes would rub between the upper and lower rub boards. That was the purpose of that machine.

1450 *Watson A. Osgood—For Defendant—Cross.*

(Said circular offered and received in evidence as Plaintiff's Exhibit 33 [Tr. Ex. 45].)

Referring to Plaintiff's Cr.-Ex. 1 (Tr. Ex. 55), showing the single blade agitator, that shows substantially the type of one-blade device which I say superseded the Form 4 machine. I wouldn't say that that blade was about five or six inches high. I don't know. I couldn't say how many of those machines I sold. I am not selling any
1451 now. They haven't made that machine lately. I do not know when I quit selling those. I should imagine they quit selling that at about the time they began putting out the three-blade agitator like that shown in Exhibit 12. They have one model of the single blade now and if we get a call for it, we sell it. I wouldn't say when we sold the last one, and I wouldn't say we haven't sold any for four or five years. I haven't any recollection of any that I have sold within three years.

1452 Mr. Lane: That, for the purpose of the record, is the one shown in Defendant's Exhibit 12, is the one that is licensed under the Snyder patent.

The Universal machine we are selling is made by Landers, Frary & Clark. I don't know whether that machine is made under license of the Snyder patent. I don't know whether it is marked with that number. I haven't observed that.

Referring to circular marked for identification as Plaintiff's Exhibit 126, the witness was asked whether that shows the Universal machine which he sold and which he testified about.

Objection sustained.

Mr. Lane: May I take the answer under Rule 46.

The Court: Yes.

A. It shows one type.

Witness was asked about the instruction sheet, whether used in connection with the sale of Universal washers.

Objected to, not proper cross examination. 1454

Sustained. Exception.

Plaintiff permitted to take the answer under Rule 46.

A. The instruction sheet was being used in connection with the sale of the Universal machine very seldom. We put it out perhaps once in a dozen times. This was never mentioned.

(Instruction sheet marked Plaintiff's Exhibit 127 for identification, and said Exhibits 126 and 127 for identification offered as Plaintiff's Exhibits.) 1455

Objection sustained.

Exception.

We never used a circular like this in the sale of Universal machines.

Defendants also offer in evidence all the exhibits which were offered in evidence in the Brooklyn Edison case in the course of the depositions of the witnesses Osgood and Wensley, as follows:

Exhibit 2-A.

Sales contract of 1931, which was Exhibit 101 in Wensley deposition.

Sales contract of 1920 from Brooklyn Edison case, as Defendants' Exhibit 102.

Form 3 machine of the 1900 Company as Defendants' Exhibit 103.

Collection of conditional sales contracts for the sale of Form 3 washers, as Exhibit 104.

1457

Sales slip relating to the sale of a Form 4 machine as Defendants' Exhibit No. 105.

(Marked Defendants' Exhibits 2-A and 101 through 105.)

Mr. Edmonds: In the Brooklyn Edison case there were certain depositions taken relating to a machine known as the Miller machine, and the depositions relating to the Miller machine were taken in the Easy case and in the Brooklyn Edison case, and a stipulation covers the use of them in the Hurley case, so defendants now present copies of the depositions of the witnesses who testified and were witnesses who testified with reference to the Miller machine. They are the witnesses William S. Miller, John Lint, Charles F. Jenkins, Walter H. Barnhart, Verne M. Barnhart, Harry E. Barnhart.

1458

The defendants also offer in evidence all of the exhibits which were offered in the course of the depositions of those six men just mentioned, as follows:

A certain Miller machine having the walls of the tubs somewhat corrugated

and which was offered in evidence as Exhibit No. 21, and defendants offer that here under the same number.

A certain other Miller machine in which the walls of the tub were smooth is offered in evidence as Exhibit No. 22, and defendants offer that under the same number.

Defendants also offered in evidence in the course of the depositions a cancelled check, a collection of checks signed by 1460 one Barnhart, a design patent No. 53,745, and certain other cancelled checks, and still another cancelled check, as Exhibits Nos. 23, 24, 25, 26 and 27, respectively, and they are offered now as defendants' exhibits in this case under the same numbers.

(Marked Defendants' Exhibits 21 through 27.)

1461

Deposition of WILLIAM S. MILLER, offered in behalf of Defendants.

Direct Examination:

I reside in Meyersdale, Pennsylvania. I was eighty years old last December. I raise a few chickens and I have sharpened lawn mowers.

At one time I manufactured washing machines. Some forty years ago I made the first ones in Meyersdale. The company was started in 1910 under the name Miller Manufacturing

Company, and I have been connected with it since its organization. I didn't always work in the factory. I left the company in a way in 1910. I was not employed by the company after 1910 but I had an interest in the business and I helped with improvements. After I left the company I manufactured the two machines in the room. I invented it and assembled it myself. That was about 1916. I can't answer how many machines I made with corrugated tub. I
1463 made several, and that machine is representative of those I made. I made that type of machine for a couple of years. I found fault with it in one or two respects and then I changed and made the other one. A little piece of porcelain chipped off of the lining, at the top. I then paid $100 to have a new pattern made for that smooth tub.

I recognize the Design Patent No. 53,745, filed July 6, 1916, by William S. Miller of Meyersdale, Pennsylvania; that was the pattern of that machine. I don't see any difference between
1464 that drawing of the patent and the tub of that machine offered in evidence as Defendants' Exhibit 21.

(Corrugated tub machine received in evidence as Defendants' Exhibit 21.)

Referring to the partially washed away stencil, that's the kind of lettering I used. As to whether there was any difference in operation between the smooth and corrugated machine, if it would not have worked as well or if I would not have thought it would work as well I would not have made the change.

I changed from the corrugated tub to the smooth tub about 1919. I think it was 1919 by certain records I had to go by. I have examined the smooth tub machine (Defendants' Exhibit 22) and there is no doubt in my mind that I made that machine. I made about twenty-five of the smooth tub machines. I sold the majority of these machines to Mr. Harry E. Barnhart. I assembled the machines myself and made the agitators. I had the tubs manufactured by the Rundle Manufacturing Company of Milwaukee, 1466
Wisconsin. I bought the wringers from Lovell Manufacturing Company of Erie, Pennsylvania, I would say that the smooth tub machine on the right is representative of the machines I made of that type.

(Said smooth tub machine offered in evidence as Defendants' Exhibit 22.)

The cancelled check dated May 15, 1916, signed by Perry C. Miller, endorsed by me, was for the first machine that I sold, that corru- 1467
gated tub, Defendants' Exhibit 21. That's my signature on the back.

(Said cancelled check offered in evidence as Defendants' Exhibit 23.)

I recognize the sheaf of cancelled checks all made out to myself, my signature is endorsed on these checks, and signed by Harry E. Barnhart. The signature looks very much like Harry Barnhart's handwriting. The checks were for machines of both types (Defendants' Exhibits 21 and 22).

1468 *William S. Miller—For Defendant—Cross.*

(Said checks offered in evidence as Defendants' Exhibit 24 [22 checks].)

I put the stencil, the Seamless Tub, on this Defendants' Exhibit 22 when I made the machine. I don't know the exact date when I stopped making those machines, Exhibit 22. I started making them in 1919 and just how many years I kept up manufacturing them I can't recall. I stopped making them because I didn't have the finances. Mr. Harry E. Barnhart was
1469 my principal agent for these machines.

I had some of the machine work done at the Miller Machine Works at Springs, Pennsylvania. I assembled the machines at my home. I suppose I worked in the Miller Manufacturing Company plant during the time I made those machines, Exhibits 21 and 22. I made the agitators myself at the factory, personally. The corrugations were worked out by others, but I put them together. I have reference to the cleats on the agitator. I don't think I made the
1470 board on the disc of Exhibit No. 21. I know I made the casting on the agitator of Exhibit 22. The agitators are the same type as those that I made.

(Design Patent No. 53,745 offered in evidence as Defendants' Exhibit 25.)

Cross Examination:

I began the manufacture of washing machines about forty years ago. I bought tubs and finally I manufactured wooden tubs myself. I invented machinery to turn the tub. I bought a lot of dolly pegs and fastened them on the dolly.

The very first machine was fork shaped, three

1471

long prongs that worked the clothes back and forth. I made a square box machine and had those dollies. The first machines made with the agitator consisting of a disc with ribs on it goes back as far as Exhibits 21 and 22. Whether I made any of that style before that I couldn't say. I had a very different agitator at one time for the hand power machine. I had a patent for that. The corrugations were the same. They were on the bottom and came up the sides. We were making only hand power machines in 1910 and when the Miller Manufacturing Company was organized. The Miller Company did not manufacture machines like Exhibits 21 and 22. They had nothing to do with the machines like Exhibits 21 and 22.

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The porcelain tubs were in reality a cast iron tub with a coating of enamel over them. The tubs were quite heavy and weighed approximately 100 pounds.

XQ128. Did you have any difficulty in having this tub of Exhibit 21, this one I have my finger on, manufactured and supplied to you? Were there any objections about it, difficulties in manufacture? A. No, there was a reason why I made the change to the smooth tub as I stated a while ago.

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The ribs on the bottom of tub, Exhibit 21, are there because there was a time when the women thought a tub must have corrugations or else it would not wash. There are similar ribs at the bottom of the tub, Exhibit 22. They are there for the same reason as in the other tub, but it goes to show that I learned that the corrugations don't amount to anything in a wash-

ing machine as the women used to think. I stepped off from Exhibit 21 to Exhibit 22.

I don't recall which tub, Exhibit 21 or 22, cost the more.

I discussed with those in charge of the factory features of the machine that they were manufacturing and the changing of designs or improving of the designs of the machine or the different parts, and made suggestions to them which they adopted to some extent.

1475 In both Exhibits 21 and 22, there is a shaft extending up from the bottom of the tub. That shaft has wings or flanges to drive the agitator. That shaft goes up through the tub, and the part that has the wings on is the sleeve.

XQ149. And those cleats and the so-called agitator move right around over the clothes? A. Back and forth.

XQ150. Back and forth? A. Yes.

XQ151. And that was true in Exhibit 22, that is this machine that I have my hand on, just as in Exhibit 21, is it not? A. Yes.

1476 XQ152. So that these cleats on the bottom of the agitator move around on the clothes and there is the rubbing action as they go around? A. They are on top of the clothes, but that they just exactly move around on top of the clothes—they take hold of the clothes and create an action of both the clothes and water, produce a washing action.

XQ153. They move the clothes around and rub them as they move? A. Yes. They agitate the clothes and the water.

XQ154. That disc with the cleats on the bottom which you call the agitator would always be free to move up and down depending upon

the amount of clothes beneath it? Is that correct? A. Yes, that is correct.

XQ155. And it is always on top of the clothes? A. Yes, sir.

XQ156. And the clothes come up in between the cleats up against the disc? Is that correct? A. Yes, sir.

XQ157. So that as that moves around, it moves the clothes with it and the clothes rub against those cleats? A. They are in contact and operated by the agitator. 1478

At all times the weight of the agitator is on the clothes.

As to whether I had any parts of cast iron or other pieces of metal fastened on top of the agitator so as to give it more weight, I would say that that is what that is on there for, partly. We put it on in order to save the wood. Referring to piece of metal on top of agitator of Exhibit 22, fastened by four screws, that metal is on there partly to save the wood and partly for weight, and that helps to press it down and rest on the clothes. 1479

Of the machines we had, one was called the hand power machine, maybe also the electric, too, and the Home Gem. Exhibit 22 is the Seamless Tub. The Home Gem was a wooden tub machine, a hand power machine, and electric also. The agitator in the Home Gem we called the same type of agitator as in Exhibit 22.

Referring to circular bearing the name "Miller Manufacturing Company, Meyersdale, Pennsylvania," illustrating Model J, the picture shows that there are six cleats on the disc. The disc fits over a standard in the tub and the disc and cleats operate in the same manner as the agi-

tator of Exhibit 22 and also the same as the agitator in Exhibit 21.

(Circular marked for identification as Plaintiff's Cross-Exhibit No. 3 [Tr. Ex. 58].)

I understand the way the machine in Plaintiff's Cross-Exhibit No. 3 (Tr. Ex. 58) for identification operates.

1481 About four weeks ago Mr. Lyon came to Meyersdale to see me, to talk about my giving testimony in this case. He referred only to machines like Defendants' Exhibits 21 and 22 as I recall. I am not sure whether he asked me anything about a machine as shown in Patent No. 738,560. (Counsel hands patent to witness.) He did not ask me questions about this patent. This patent doesn't relate to machines of the type of Defendants' Exhibits 21 and 22.

At the time Mr. Lyon came there, I showed him a machine like Exhibit 21. The identical

1482 machines, Exhibits 21 and 22, were not in my possession when Mr. Lyon visited there. I did not have them in my possession since I shipped them away right after they were finished.

I also talked to Mr. Free about those machines.

The board that is fastened on top of the agitator of Exhibit 21 was always there as a batten to hold it together. I think that's the original batten.

The cleats on the bottom of the disc are the same shape but I can't say positively they are the same. They are apparently exactly the way I made them. I think I sawed the cleats in

length myself. The material was always the same tapered shape.

On the disc of Exhibit 22, the batten on the top of the disc is, I think, the original one that was there when I sold the machine. On each end of the batten, a piece of lath or similar board has been nailed on. I did not put that on and it was not there when I sold the machine. That is repair work. I should say that the cleats on Exhibit 22 are worn bad enough to be the original cleats that were fastened on 1484 the disc when I sold the machine. What causes the wear on the cleats is that the cleats have an effect on the clothes and the clothes have an effect on the cleats.

I cannot answer how many machines like Exhibit 21 I sold. I did not sell as many as fifty. I can't answer whether I sold as many as twenty-five. I did not keep a record of those things, or keep a book of the machines I manufactured myself. I cannot recall what the price was. When I got the new pattern, I stopped putting out the old machine. As to when that 1485 was, I can't recall.

I have no record of how many machines like Exhibit 22 I sold, possibly twenty-five.

XQ240. Now, Mr. Miller, how many oscillations a minute were made by the agitator? A. Back and forth action?

XQ241. By the agitators of the machines you built which were like Exhibit 22. By oscillations I mean the total back and forth movements? A. How many revolutions in a minute?

XQ242. How many oscillations in a minute? A. That I can't give exact, but I was wise enough not to run it too fast nor too slow.

XQ243. Do you think it was as many as twenty a minute? A. More than that.

XQ244. How much more than that? A. Twice that many anyhow.

XQ245. About forty, you think? A. Well, more than forty.

XQ246. More than forty? A. Yes.

XQ247. You can't say how much more than forty? A. No. No, I didn't set my head to little things like that to remember but I knew when
1487 I made them what I was doing.

XQ248. Can you tell me how many degrees of the circle the disc moved through during its oscillation. How far around the circle it went? A. Do you want that answered?

XQ249. Yes. A. Well, anyhow, half way, possibly two-thirds. I cannot say for certain about that.

Re-direct Examination:

I put out the first smooth tub machine in
1488 1919, approximately. I designed the tub of the first machine, Exhibit 21. The pattern was made by a regular pattern maker in Pittsburgh. I furnished the specifications or design. I designed the smooth tub and the Rundel Manufacturing Company made the tub according to my design. The quantity of water and the amount of clothes regulates the vertical position of the agitator. There is a rim on the sleeve at the bottom to hold the agitator when the tub is empty so that it won't rub on the bottom. The purpose of that is to keep that from going all the way down and catching on the bottom. The ribs or cleats on the under side of the agitator

have a very good action on the contents of the tub. It takes a good hold of the clothes and works the clothes and the water, not necessarily rubs them. I will put them in a smooth tub all around as smooth as this and wash clean with it. I would say that the bottom ribs in the tub are an inch and a quarter wide and three-eighths of an inch high. I was influenced to put them there by what the women thought, that there must be some corrugations in a wash machine. If I made the tub now they wouldn't 1490
be in at all. I would have nothing but a smooth tub all around and wash as clean as they washed. I don't think the corrugations have any effect on the washing operation.

Mr. Barnhart paid me the amounts on the checks, Defendants' Exhibit 24, because I sold him washing machines. I did no business with Mr. Barnhart in addition to washing machine business. The checks represented washing machine transactions exclusively.

Re-cross Examination: 1491

I built the factory myself and it was taken over when the Miller Manufacturing Company was organized in 1910. At that time, in 1910, I had manufactured hand machines in which there was used a disc with cleats on the bottom. The Miller Manufacturing Company continued to use the same kind of cleats that I had been using. That would be cleats like those on the agitators of the machines, Exhibits 21 and 22, the tapere[illegible] cleats. I had been using those tapered cleats some time prior to 1910. The women who had rubbed on a wash board with

its different corrugations or ribs, liked a machine with ribs in it, but I finally proved to them that the ribs are not necessary at all (indicating Exhibit 22). The women imagined those ribs in the bottoms of the tubs rubbed the clothes. They imagined the clothes would rub on the ribs. I don't know that I demonstrated to any women that they didn't need ribs in this machine. Every machine I shipped out stayed, and never came back to me. The
1493 women were satisfied with a tub smooth as glass (indicating Exhibit 22).

I have not sold any washing machines like either Exhibits 21 or 22 for about ten years.

Exhibit 22 machine washed what I called a good size tub full down within a few inches. This was supposed to be off the bottom about that much, I believe (Witness indicating agitator). You could put a good big bunch of clothes in the machine and successfully wash them. If I couldn't, the women wouldn't buy a machine like that and it was up to me to make
1494 it right. The more clothes you could put in the better. That stand pipe was in there and they wouldn't dare to fill it up too high or it would run over.

Deposition of JOHN N. LINT, taken in behalf of Defendant.

Direct Examination:

I live in Meyersdale, Pennsylvania. Age, thirty-six. Occupation, general job repairing. My shop is in the Miller Manufacturing Com-

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pany property. They manufactured washing machines chiefly. I was employed there from 1913 until 1917, and then from 1919 until 1928 when they went out of business. Mr. Miller was associated with the company during the first year I worked there. Then another manager was appointed or selected.

I saw Mr. Miller very frequently after he left the company. He made visits to the plant and had a great deal to do with the designing of the washers and the washer being produced 1496
at that time and contemplated improvements in shop practice and stuff like that. The machines were being produced by the company under the direction of Mr. Dill and Mr. Jenkins from 1913 to 1917.

Mr. Miller had assembled several complete machines in the shop. They were similar to the machines like Exhibit 21. I saw those before 1917. These were similar enough to Exhibit 21 to be identical. When I returned after an absence of two years or more the smooth tub machine was being made, but just how long after 1497
I returned from war service, I am unable to answer that. I saw six or seven of the machines like Exhibit 21 before I joined the service in 1917. Mr. Miller had the wood working done at the plant. I can identify the stencil on the side of the machine, Exhibit 21. He called a machine of that class the Porcelain Age and the stencil had his name and address on it.

Giving the operation of the machine, Exhibit 21, the action of the disc in that machine is downward. The clothing are first put into the machine and the disc down on top of them and the design of the disc is such that it takes hold

of the clothing and drags them through the water, setting up at the same time both an action of the clothing and the water, whereby the washing is completed. The only rubbing action that takes place in the tub is the slip of the disc over the top of the clothing. It is not a rubbing action between the sides and bottom of the tub and the disc.

I have never seen a machine of the smooth tub type like Exhibit 22 in operation.

1499 The vertical position of the agitator in Exhibit 21 is dependent upon the water level and also the amount of clothing in the machine. If the tub is full of water, the agitator floats on top. If the tub is full of water and clothes, the position of the agitator will not vary much, the water level being the same.

When I returned from the war, the Miller Manufacturing Company was making two bottom drive machines and one top drive electric. These two bottom drives were electric too and several hand powers. These were the model J

1500 and improved A.

The agitator was employed as in the machines, Exhibits 21 and 22, coming down from the top over a blind sleeve.

The Miller Manufacturing Company made an under-water agitator machine in 1923. I designed it.

The first intimate recollection I had of the Maytag machine was in 1923, after I had designed my under-water agitator machine. Prior to that time I did not know anything about the Maytag machine. I thought my design was original with me. I found out about the Maytag

machine through Mr. Miller. He had seen one down the street.

After I joined the company in 1913, the only types of machines that Mr. Miller made personally were like Exhibits 21 and 22.

Mr. Jeffery and Mr. Mason visited me yesterday. They wanted to know what it was all about.

Cross Examination:

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Mr. Jenkins was manager from 1916 until 1920.

When I went to the Miller Manufacturing Company in 1913, it was manufacturing wooden discs with tapered cleats attached to them. It is somewhat similar to the discs in Exhibits 21 and 22. The disc they used had six cleats and these have four, but it is the same shape, the same design.

I entered the employ of the Miller Company about three years before I first saw a machine like Exhibit 21 designed and built by Mr. Miller. 1503

Mr. Mason and Mr. Jeffery talked to me yesterday, asked me about the machines that were built by the Miller Manufacturing Company within my knowledge. They asked me if added weight was put on top of the disc in some of the machines which have been made by Mr. Miller, and my answer was that the older machines that were made had a heavier shaft, tending to force these discs deeper than the discs of this type. The old machine I referred to was what we used disc No. 1 on. The top drive machine. No weights were put on any of the discs of machines like Exhibits 21 and 22 for

the purpose of weighing them down. There was a driving shaft put on the top, that of necessity had some weight to it. The shaft that drove the disc.

The first place the action takes place in the tub of a machine of the type like Exhibits 21 and 22, is on the top of the clothes, if you allow enough time, the clothing will be washed as clean at the bottom of the tub as at the top. The action starts at the top and works down.
1505 They are washed first on the top. I have seen clothes being washed in machines like Exhibits 21 and 22. I have never seen the two operating together. I have seen clothes being washed in machines like Exhibit 22, but I do not know how many pounds of clothes were put in the machine. The machine is rated originally at the six sheet capacity. There was a water line marked on the machine approximately four or five inches from the top. The water is first put in and then clothes. Too much clothing cannot be put in for the disc will stand above the top
1506 of the driving sleeve. When the clothes were in the machine, the cleats touched them.

The oscillations of the agitator in Exhibit 22 were approximately ninety per minute. That would be forty-five movements from the starting point to the stopping point and forty-five from the stopping point back to the starting point. I never measured it or saw it measured. I said approximately.

When the agitator is moving, the clothes are being rubbed by the cleats to a certain extent. There is a certain amount of slip on top of the clothing. The agitator does not take a direct hold on them. That is not the principle of the

action in the machine at all. The purpose of the agitator in the machine is to agitate the clothing and carry them back and forth through the water. That is the principle of the water. It is inefficient, because the agitator is bound to slip on the top of the clothing. The fact is, there is a rubbing action by the cleats. The design was supposed to cover one hundred eighty degrees of a circle by the disc in the movements of the agitator.

Previous to Mr. Jeffery and Mr. Mason talking to me, Mr. Lyon and Mr. Free had talked to me. I was here throughout the entire deposition of Mr. Miller and heard it all. 1508

Re-direct Examination:

The agitator in the No. 1 top drive machine was not weighted. To make the point clear, there was more weight upon that disc than on this particular disc. The weight was not there purely for the purposes of weight. There was a square shaft with a foot that took the place of this piece of casting (indicating Agitator 21) which was bolted through this disc long enough to extend up through the gearing on the top. That shaft weighed, I suppose, about four or five pounds compared to the weight of the casting that drives that piece (indicating Agitator No. 21). The weight was made of cast iron and the weight was in it to give it strength. The weight was not put in there in that particular case to force the agitator down. 1509

Comparatively speaking, the agitator in Exhibits 21 and 22 were not weighted at all.

The purpose of the metal disc at the top of

the agitator of Exhibits 21 and 22 is for driving purposes only. The discs on the agitators connect the agitators to the splined shaft extending up through the bottom of tubs 21 and 22. The first washing action of the clothes takes place at the top. I am not sufficiently informed to say if the clothing changes places in the tub, whether the clothes from the bottom comes up to the top or from side to side or which, but the first washing action will be done
1511 where the action is the greatest and that is on the top of the tub. I don't know whether the clothes remain there throughout the washing operation.

The action of the agitator is to carry all of the clothing and after a certain length of time, that action, to a certain extent takes place and all the clothing in the tub moves through the water, but the first washing action takes place in the tub, as I see it, directly beneath the disc, but later on all the clothing in the tub are cleaned by the action of the disc, the back and
1512 forth action, because if the action only took place on top, you could run the machine for a life time and only the clothing on top would be washed.

The agitator slips with respect to the clothes, and moves the clothes and the water. I am not sure whether the agitators in these machines move 45 oscillations, it might be more or it might be less. I don't know when I saw a machine, Exhibit 22, a smooth tub machine, in operation for the first time, but I have seen them in operation in Meyersdale for twelve years.

Re-cross Examination:

On top of the agitators in Exhibits 21 and 22, there is a circular casting of iron which is of some weight. I would say that the casting on the top of the batten of the agitator of Exhibit 22 weighs approximately one pound. I could not tell how much lighter the casting on the batten of the agitator of Exhibit 21 is.

As I recall, I told Mr. Jeffery and Mr. Mason yesterday that the perpendicular corrugations were left off because of the difficulty in patterns. The pattern had a tendency to break down. I have reference to Exhibit 21 and to Exhibit 22 where the perpendicular corrugations were omitted. 1514

Re-direct Examination:

I don't know of my own knowledge why the pattern broke down, but that is only my impression of why the two were changed.

Re-cross Examination:

My impression of yesterday and today is that the corrugations of Exhibit 21 were left off the machine, Exhibit 22, because there were manufacturing difficulties connected with the patterns. 1515

Deposition of CHARLES F. JENKINS, taken on behalf of Defendants.

Direct Examination:

I live in Meyersdale. I am a travelling salesman.

I was manager of the Miller Manufacturing Company at one time, from November, 1916, to

November of 1920. After November 1, 1920, I left the Miller Manufacturing Company and I went on the road selling goods. While I was with the Miller Manufacturing Company I was general manager, purchasing agent, bookkeeper, salesman, looked after the men in the production end, general manager.

Mr. Miller had nothing to do with the Miller Manufacturing Company except as a stockholder at the time I took possession. What Mr. Miller
1517 did was not in any business capacity with the Miller Company. What he did was upon his own time and for his own purposes and in advancing the business as far as he could. He was looking after the general improvement of the Home model machine. He was interested in a machine of his own. He came there to work on different parts of his machine. The first machine I saw him working on that he worked on in his own behalf, that I recall, was the corrugated tub after he left the Miller Company. That would be the latter part of 1916. That is very vivid
1518 in my mind, it was either in November or December. Mr. Miller assembled the machines in the Miller plant and sold them. I furnished some parts. The company I represented furnished some parts, lumber and he frequently bought motors from us. He bought wringers from us. The tubs he bought elsewhere.

Exhibit 21 is one of those corrugated tubs. I saw about half a dozen of the tubs during the period of my recollection. He made many at his own home. I would not say there is any difference between the machines I saw and Exhibit 21, and I would say it is representative of the machine which Mr. Miller made during that period.

I have seen several of the smooth tub machines like Exhibit 22. I would say that I saw one in 1919.

Mr. Miller also made smooth tubs of copper.

I never saw Exhibit 21 or 22 operated in washing clothes.

The interior of the wooden tub machine made by Mr. Miller was of corrugated wood. The corrugations were smaller than in Exhibit 21. The smaller corrugations were three-fourths of an inch to seven-eighths possibly. Both bottom 1520
and side were corrugated, with this type agitator with the exception that we had six cleats on them instead of four.

Cross Examination:

I was in complete and full charge of all the operations of our company, including all advertising. I prepared all the advertising matter issued by our company. I knew what was in it and I did then, and do now, vouch for the accuracy of it. Referring to Plaintiff's Cross-Ex- 1521
hibit No. 3 (Tr. Ex. 58) for identification entitled "The Home Model," Model "J" under the name of the Miller Manufacturing Company, bearing my name as manager, I recognize that. I put out many thousands of them. They were distributed in West Virginia, Maryland, Pennsylvania, and Ohio. Some went to Chicago. That pamphlet correctly describes the machine of the Miller Manufacturing Company, Model "J" and its mode of operation. The tub was wooden. The circular was issued in the fall of 1918 or the spring of 1919. The driving mechanism of the machine I made was like the driv-

1522 *Walter H. Barnhart—For Defendant—Direct.*

ing mechanism of Mr. Miller's personal machine. The under gearing was the same and also the running attachment. I don't know the rate of oscillation of these machines.

I was not subpoenaed to come here today. I came of my own free will.

Mr. Jeffery: I now offer in evidence the circular bearing the name "The Home Model," Model "J," as Plaintiff's Cross-
1523 Exhibit No. 3 (Tr. Ex. 58).

The design of the machine was mine. So far as I know, the statements contained in this leaflet about the operation of this machine are entirely correct.

Re-direct Examination:

I did not write the text of the leaflet, Plaintiff's Cross-Exhibit No. 3 (Tr. Ex. 58).

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Deposition of WALTER H. BARNHART, offered in behalf of the Defendants.

Direct Examination:

Residence, Johnstown. Age, thirty-eight. Occupation, mill hand, with the Bethlehem Steel Company. Harry Barnhart is my brother. He works for Bethlehem Steel Company and has been selling radios and washing machines. He has been selling washing machines for seventeen years or more.

I own a washing machine. William S. Miller

made it, and my brother Harry Barnhart sold it to me in October, 1919. We got the machine just after my son was born in 1919. I paid partly cash for the machine and I helped to put in his cellar floor to finish paying for it. I recognize my washing machine (witness indicates Defendants' Exhibit 22 as his machine). I would say that the machine is in about the same condition as when I bought it in 1919, except the agitator, which is worn out. There were two new ribs put on the agitator. I put those on myself three or four years ago (witness indicates two adjacent ribs less worn than the others). The old cleats split. The other two were never replaced. It is the original circular board or disc. The batten board on the top of the disc is the same except for these two transverse strips on top of batten board, which I put on because the board was split and I strengthened it. This agitator is in the same condition as when I purchased it except for replacement of the two cleats and the two strips across the batten. I also replaced the two rolls on the wringer. I replaced the motor, too. The machine has been in my possession since I purchased it in 1919 up to yesterday. This morning four men put it in a truck. I should say the machine was used twice a week for fifteen years. During this period, it was operated by my wife and myself. It has never been out of my possession. I painted the outside of the machine several times.

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I remember seeing the stencil with the name William S. Miller on the machine. I first saw it in October, 1919. My brother told me that William S. Miller manufactured the machine.

1528 *Walter H. Barnhart—For Defendant—Re-direct.*

I have seen the machine of the corrugated tub type, Exhibit 21. When I repaired the cellar in Harry Barnhart's house I saw such a machine similar to that for the first time. I would not say it was the same machine. There is no doubt whatever in my mind about that date, October, 1919.

It would take ten minutes to wash a batch of clothes in the machine, Exhibit 22. It did a good job on all kinds of clothes.

1529 *Cross Examination by Mr. Jeffery:*

I got the two cleats that I replaced on the agitator of Exhibit 22 from my brother Harry. The gearing on the machine has not been changed.

This comparatively small machine weighs about four hundred and fifty pounds, and took four men to carry it.

We didn't put in as many clothes as we could. I didn't put many batches in but I would say we only put in about four to six
1530 inches of clothes in the washer.

I do not expect to get this machine back after this testimony. I have not exactly sold it, but Mr. Lyon and Mr. Free promised me a trade. They are going to give me another machine to replace it.

The price of the machine which I paid for partly in cash and partly by work I did for him at his house, was $135.00.

Re-direct Examination:

We have very steep stairs going up to my house. It would take several men to carry any-

thing of any weight. Carrying a machine is awkward down those steps. 1531

I am not glad to get rid of this machine, Exhibit 22, because it is a good machine.

Deposition of VERNE M. BARNHART, offered in behalf of Defendants.

Direct Examination:

I live in Johnstown and am the wife of Walter H. Barnhart. 1532

I recognize the machine, Defendants' Exhibit 22, it is my machine. I last saw it about nine o'clock this morning in my home. I first saw the machine in October, 1919, which is just a couple of weeks after my baby boy was born.

I operated the machine every day for a while and twice a week after that. I would do one washing a day with that machine on an average of four loads. It takes between ten and fifteen minutes to wash a batch of clothes in that machine. As to how I account for the difference between ten and fifteen minutes, sometimes if the water is warmer, it takes less time. 1533

Harry Barnhart delivered the machine to me in October, 1919, and I have had it ever since. I have had no other machines. It did a very good job of washing.

Cross Examination:

I am not willing to give this machine up but we are giving it up because it will soon need a lot of repairs, and we are going to get a new machine. I have seen the old model Easy Washer. My sister has one.

1534 *Harry E. Barnhart—For Defendant—Direct.*

Deposition of HARRY E. BARNHART, offered on behalf of Defendants.

Direct Examination:

I live in Johnstown. Age, forty-five. I am employed at the Bethlehem Steel Corporation, as foreman in the Blooming Mill.

I have been in the electric appliance busi-
1535 ness in the last twenty years, selling electric washers, electric mangles, electric stoves, and all sorts of small electric appliances.

The first washers I sold were made by William Miller in Meyersdale and after that I sold washers manufactured by Miller Manufacturing Company, the Haag Company, the Foote-Burt Company in Cleveland, which were the Arabell washers and then the Horton.

I sold the washer made by William Miller from 1916 to 1924.

Then I sold Miller Manufacturing Company
1536 washers. I sold between twenty-five to thirty-five washers made by Mr. Miller.

I see two of the Miller washers in the room, Defendants' Exhibits 21 and 22. I first saw Defendants' Exhibit 21 in 1916. In the fall of 1915, my wife and I were visiting at her aunt's in Meyersdale. Her home was in Meyersdale, but her mother was dead and that was why we were staying at her aunt's house. On a Sunday afternoon, Mr. William Miller happened in at Opels, my wife's aunt, and talked for some time and then asked me if I had a washer and I told him I didn't. He wanted to know if I would wish to buy one. My wife told him we didn't

wish to buy one but I told him if I could get a washer at the right price I would buy one, so he asked me to come up to his home which was two houses above where Mrs. Opel lived. I went up with him and he explained that he was going to build some washers and told me what they would be like, etc., and he said if I could advance him the money required of me for this washer that he would sell it to me very cheap. I asked him how much he would want for the washer and he said if I would give him forty- 1538
five dollars cash that within several months he would have a washer ready and he would give me one of these washers. He was building more than one. I do not recall just how many he was going to build at once. I went back down to Opels. I didn't know the gentleman very well. I asked her what sort of a gentleman this Mr. Miller was and she said she had known him all her life and he was a perfectly honest man. I decided then I would do as he asked. I gave him thirty dollars cash and some time after that, I don't recall just how long, it was not 1539
very long, I sent Mrs. Opel a check for fifteen dollars to cover the balance of the cost of the washer and asked her to get a receipt in full from Mr. Miller. That was in 1915. Well, I did not receive the washer until in 1916. I do not recall just when. I think it was around the spring or summer. That was the first time I saw the washer when I received it from Mr. Miller.

That washer is in the room, Defendants' Exhibit 21, and has been in my possession all the time until yesterday when it was brought in here. The cancelled check you hand me is the

check that I sent Mrs. Opel as the final payment on the washer to be paid to Mr. Miller. My signature is on the check. I handled the transaction in this way as I wanted a receipt in full, not knowing Mr. Miller very well.

The only changes on Defendants' Exhibit 21 are several new gears and I applied a coat of paint.

The stencil is partly obliterated. Originally the stencil said—Porcelain Age Washer, Manu-
1541 factured by William S. Miller, Meyersdale, Pa.

The speed of the motor which is now missing from this machine was 1750 R. P. M.

(The check to Mrs. Opel offered in evidence as Defendants' Exhibit No. 26.)

After acquiring the machine, Defendants' Exhibit 21, I again visited Meyersdale, and Mr. Miller wanted to know if I would sell some machines for him. I sold one to a neighbor, Mrs. Reddinger. It had a corrugated tub like Ex-
1542 hibit 21.

(Witness identifies sheaf of his checks from June 18, 1918, to June 9, 1924, as being sent to Mr. Miller as payment for the washers.)

I recognize Mr. Miller's signature, as indorser.

The check issued September 23, 1918, was for a washer which Mrs. Bacon in Baltimore had bought. Mr. Miller shipped the machine directly to her and I did not see it, but at that time he was building the smooth tub type like Defend-

ants' Exhibit 22. Mrs. Frank Barnhart bought a machine of the smooth tub type from me around July, 1918. Check dated July 11, 1918, in Defendants' Exhibit 24 was to reimburse Mr. Miller for Frank Barnhart's machine. If I recall correctly, the machine sold to Frank Barnhart was the first smooth tub machine I had sold.

(The cancelled check to Mrs. Louis Bacon offered in evidence as Defendants' 1544
Exhibit 27.)

I sold only three machines with a corrugated tub like Exhibit 21. I sold one of those to Mr. Frank Reddinger, Berkley Road, Johnstown, and Mr. Leo Beas, Strayer Street, Johnstown. I sold those late in 1916 or early in 1917. They still have their machines.

I sold the smooth tub machine, Defendant's Exhibit 22, to Walter Barnhart, a brother of mine, in 1919 in the summer or fall.

Q77. How do you fix that date? A. Well, I 1545
built the home which I am now living in, in 1919, and my brother, Walter, helped me to put down the cellar floor in this home as part payment on this washer. That was the first year that I lived in my home. I moved in there in 1919 and that is the way I know he acquired it prior to that time. It was in 1919 some time that he got the washer.

I allowed him about thirty or forty dollars for the work he did in the cellar and he paid the balance in cash. The total amount of $135.00.

I have seen similar stencils to the one of Defendant's Exhibit 22, and I saw that one too.

The paint was scraped off by Mr. Free, Mr. Lyon and myself to expose the stencil, in the presence of Mr. Jeffery and Mr. Mason.

I sold about six machines like Defendant's Exhibit 22 between the sales to Frank P. Barnhart and Walter Barnhart. Referring to the checks Defendant's Exhibit 24, either the one dated May 1, 1919, or the one dated April 17, 1919, was the payment to Mr. Miller for Walter Barnhart's machine. I am not sure which. I
1547 also sold a corrugated type machine to Mr. George Lorditch on Grape Avenue, I believe I gave you Mr. Leo Beas. I also sold a smooth type machine to Mrs. Heller, Mrs. Robert Forney, Mrs. Walter Liddick, Mrs. Weaver, Mr. Carl Weiss, and also to his father, and Mr. Harvey Shoemaker, Gilbert Shoemaker, Henry Shank and Mrs. William Croft. The smooth tub machines were sold from 1918 to 1924.

In 1919, I sold smooth tub machines to Mr. Frank Barnhart and Mrs. Bacon. In 1919, Mr. Walter Barnhart bought one.

1548 The first machine I bought from Mr. Miller I paid for in advance but after that he would send them to me. I had a standing order. As soon as Mr. Miller finished one, he would ship it, as I sold practically all the machines he made. Mr. Miller worked at his home shop and also at the factory.

I believe that the enamel in one of the corrugated tubs like Defendant's Exhibit 21, chipped after I sold it. I would not take the chipped machines because they were not saleable.

I would go over to Meyersdale about once a month.

I sold the last corrugated machine like Defendant's Exhibit 21, some time in 1917, and then I sold the smooth tub type machine like Defendant's Exhibit 22. I replaced the gear that operated the reverse of the gyrator in Defendant's Exhibit 21. I had that gear made myself. It was the same as the original gear. I know that Walter Barnhart put two new vanes on the agitator which he got from me. He got the material from me.

I bought about three hundred dollars worth of 1550
gears for the machines and I sold about five dollars worth of them. The machines did not wear out.

The corrugated machine, Exhibit 21, was used for washing about once a week on an average, but I know of its having been used five or six times a week. We used it up to a year ago.

Of the machines built by Mr. Miller, I always sold the types like Exhibits 21 and 22.

Mr. Miller built a copper tub machine but I only saw one of those. I feel sure it was prior to the time he built that smooth tub machine. It 1551
was a round, smooth copper tub like the tub in Exhibit 22 and all I recall is the tub.

The corrugated machine Exhibit 21, did a good job. On an average we would run our washer from ten to fifteen minutes to wash a batch of clothes.

I operated machines like Exhibit 22, as I always gave demonstrations when I sold them when possible. It did about the same kind of a washing job as to time and to cleanliness, as Defendant's Exhibit 21.

I sold two machines that were manufactured by the Miller Manufacturing Company after I

sold machines like Exhibit 21. They were both wood tub machines. I sold Mr. Smith a machine and Mr. Nipps shortly afterwards. I am not sure about the date, but it might have been from 1918 to 1920. I stopped selling Mr. Miller's washer because he stopped making them due to a lack of finances.

As to the machines I enumerated, I have not seen them all within the last year or so, but I have talked to all of those that I will mention
1553 and they have told me they are in use. That is all I can say on most of them. Mr. Frank Reddinger's machine is in use. That is a corrugated tub. Mr. Leo Beas, I know that his machine is in use. It is a corrugated tub. A Mr. George Lorditch, corrugated tub is in use. I did not see that but he told me he is still using it and I know he has not got any repairs so it must be. Mrs. Frank Croft. That is a smooth tub. I saw that within the last couple of weeks and it is still in use. Mrs. Weaver, I don't recall the first name. She has a smooth
1554 tub which is still in use. Mr. Harvey Shoemaker and Mr. Gilbert Shoemaker both have smooth tub machines that are still in use. I know Mr. Walter Barnhart's machine was still in use, Exhibit 22. Mr. Frank Barnhart's machine is still in use. I saw that. Mr. Carl Weiss, his machine is still in use. He told me his father's was too. I didn't see it. They are both smooth tubs. Mr. Henry Shank, I spoke to his wife on the phone. She said hers was still in use. She needed a new belt for it though. I last saw Walter Barnhart's machine, Exhibit 22, in operation and use on Monday of this week.

Cross Examination:

I kept no records of the sales of the various machines I testified about. My testimony as to what specie of machines I sold to the various customers is determined by what kind of machines I saw; that is, whether it is smooth or currugated. As I told you, I have seen some of these machines in the past couple of weeks so by that I would know whether they are corrugated or smooth tub. 1556

The machines of the Miller Manufacturing Company which I sold around about 1919, the first one had a wood tub, corrugated and the gearing was on top of the machine, and the agitator worked from the top down. It had a square shaft running down to the agitator. The sides of the machine were corrugated. I couldn't say about the bottom. I think it was but I am not sure.

I have sold the type machine shown in Plaintiff's Cross-Exhibit 3, (Tr. Ex. 58). The circular shows a similar agitator to the one to which I 1557 have just referred except most of these agitators did not have holes in them. Some did. This circular shows six vanes and Mr. Miller's agitator only had four. The agitator shown on the circular Plaintiff's Cross-Exhibit 3, (Tr. Ex. 58) corresponds to the agitator of Defendant's Exhibit 22, in that they were both made of wood. I don't know as to the dimensions. It does not show the cleats so well. I don't remember the size of cleats on these machines as I have not seen any of those for four or five years. I think the cleats were about the same shape. I have seen a Miller Manufacturing Company machine

with the agitator floating on the water on top of the clothes. It had cleats on it. It was similar in construction to the agitator shown in the pamphlet, Plaintiff's Cross-Exhibit 3, (Tr. Ex. 58). The agitator worked on the same principle as the agitator in the W. S. Miller machines.

The first time I was in the Miller Manufacturing Company factory was about 1918, I think. At that time they were building that type gear machine.

I think I had the two cleats which I furnished Mr. Walter Barnhart to repair the agitator on his machine made here in town but I would not be too sure whether I got them from Mr. Miller or had them made here. I don't remember. I can't say just what Mr. Free and Mr. Lyon talked to me about when they called on me. They asked me how the machine washed and how long it took to operate it. I took Mr. Lyon around and showed him different washers that were in operation. He asked some of the women how the machines operated. Mr. Lyon saw a machine made by the Miller Manufacturing Company in my home. The machine I am using at the present time, and started using about a year ago, was built by the Miller Manufacturing Company. It has an aluminum tub.

Re-direct Examination by Mr. Free:

The only record I have of sales are the cancelled checks, Exhibit 24, and nothing else. I had no other transaction with Mr. Miller besides washing machines.

Walter Barnhart also got a new motor. I sold him a new motor several years ago. It was the

same as the old motor. I saw his machine quite frequently since he purchased it from me in 1919.

RDQ209. Then that machine, Exhibit 22, with the exception of the coating of paint and the changes which you have enumerated is the same today as it was in 1919 when you sold it to Walter Barnhart? A. Yes, and also a new bottom wringer roll he purchased. Of course, that has nothing to do with the operation, but I remember he purchased a wringer roll.

RDQ210. That is, the rubber roll? The bottom rubber roll on the wringer? A. Yes, the drive.

RDQ211. Is that machine, Exhibit 22, representative of all machines of that smooth tub type which you sold? A. Well, the tub part is, but the type of wringer and the gearing is different in some of the later type machines.

RDQ212. What do you mean later type machine? A. Those that I sold after—some time, I think in 1922. I think he changed the gearing. Instead of having that type gearing, he had a worm which operated a Pitman Arm.

RDQ213. All other machines prior to that change in 1922 were like Exhibit 22 so far as you know? A. Yes, they were the same thing.

I don't know what the holes were for which were in one or two of the Miller agitators. My opinion of it would be so that the agitator would not float. The way the agitators are now, you have to get hold of them, you would have to catch them wherever you could, but they originally had a piece of sash cord you lifted them out with. I know the holes in the agitator I mentioned were not put in there for the purpose of lifting them out.

1564 *Harry E. Barnhart—For Defendant—Re-cross.*

The two strips of wood nailed across the batten on the top of Walter Barnhart's machine, Exhibit 22, were put there to hold it together. It was pulling apart.

RDQ219. You have testified to certain changes in the dasher of Walter Barnhart's machine, Exhibit 22. Have there been any changes in the dasher of your old machine, Exhibit 21? A. No, sir.

RDQ220. That is the original dasher? A. Yes,
1565 sir.

RDQ221. No changes? A. No changes. The difference in the dashers were that he originally put that on and that it was not heavy enough and he made one heavier.

There are two reasons for the metal plate on top of both agitators of Exhibits 21 and 22. One was to keep the wood from wearing so much on the reverse of the washer and the other was for weight to weigh the agitator down. The plate would weigh twelve or sixteen ounces.

1566 *Re-cross Examination by Mr. Jeffery:*

Aside from the machine sold my brother, Walter Barnhart, I know of other instances where the cleats had to be replaced on the agitator. I know of two that had new agitators, maybe more, but that is all I know of. They had whole new agitators. There is considerable wear on the cleats of the agitator (Def. Ex. 22). They are worn down. My opinion is that they don't carry enough water in the washer and that is why they show so much wear. The wear is caused by the clothes on the cleats through insufficient water being in the tub.

1567

Re-direct Examination by Mr. Free:

The agitator is made of wood and should be put where it will dry between washings. If you keep them water soaked, they will go to pieces and show more wear than if you thoroughly dry them between washings. That is what most of them don't do.

All the exhibits mentioned in the above depositions offered in evidence, including Exhibits 21-27.

1568

(The above depositions marked Defendant's Exhibit H.)

Mr. Edmonds: There are certain other depositions relative to the Hermance machine, one deposition only of Mary L. Carr, and that is subject to the same stipulation, and I offer that deposition in evidence.

(Marked Defendant's Exhibit I.)

1569

Deposition of MARY L. CARR, taken in behalf of Defendant, in Brooklyn-Edison case.

Direct Examination:

I live just outside Ballston Spa, New York. Age, seventy-two.

I have seen the old metal washing machine before, now shown me. I saw it sixty-eight years or more ago. I figure it was that time, because I went to school in the District School and I did not go winters after I was fourteen, and

this was got while I was going to school. A distant relative of my mother's brought the machine and my father bought it. I was fourteen years of age when he bought it. On the label was "Hermance from Schuylerville." It is not on the machine now, but has been lost.

My aunt operated the machine. I did after I got older. It was operated once a week, with a half turn with the crank. The water was put in and the clothes so it came up to the ridge
1571 on the outside of the machine, and the machine was placed on top of the stove when it was operated. It took from ten to fifteen minutes to wash a batch of clothes when the machine was nearly full. The machine was used about thirty-two years from the time it was purchased. Well, from the time we bought it to as near as I can remember we did not use the inside of the machine. We used the outside longer than the inside, to boil clothes in and to heat water. We stopped using the machine after we began using other washing materials where we did not have
1572 to rub. The materials were compounds, washing powders. Between four and five were in the family when the washing was done by this machine. It did a good job of washing. The only part missing is the cross bar at the top of the machine. The piece it rotated on was taken out and mended.

(Witness referring to a point at the center of the bottom of the tub where repairs were made.)

This machine has been in my possession ever since it was purchased up to the time I de-

livered it to your representative, Mr. Lyon, in November, 1933.

My father paid $14.00 for the machine. I do not know Hermance of Schuylerville.

This machine includes a metal tub, a dasher with squared end, cross bar for holding dasher in, a crank for the top end of the dasher and a lid.

The tags attached to the tub and to the dasher are in my handwriting. I signed those November 24th. 1574

I saw this machine in actual operation thirty years.

The machine offered in evidence as Defendant's Exhibit 20.

Cross Examination by Mr. Jeffery:

I first saw the machine when I was fourteen years of age. It was not sixty-eight years ago. It was fifty-eight years ago. I first saw the machine in our kitchen. I could not tell when I 1575 first operated it myself. I might have used it when I was fourteen. After ten or fifteen years I operated it very often myself. I did not see my father pay for it, but I heard my aunt say that they paid $14.00.

We used the outside of the machine for about thirty-two years, and discontinued using the dasher after we began using washing powders and compounds because we did not have to rub. The dasher took the place of rubbing. The clothes were rubbed by the dasher on the inside of the boiler. Referring to the U-shaped parts of metal that are hollow and open top and bot-

tom in side of the rim of the dasher, I do not know what those parts did during the operation of washing unless it threw the water up over them. The clothes rubbed against those protuberances.

In the period during which I used the dasher, I first made the suds and then put the clothes in. Then after I began using the washing compounds I took the dasher out. And after putting the washing compounds in the suds it took
1577 the dirt out and we did not have to rub. I could not tell what was the last time I operated this machine with the dasher in it. We last used the outside of this machine, that is the washing boiler, about seven years ago. Since then it has just been laying around the house. We used it for heating water and things like that, sort of an antique.

I saw an advertisement offering $25.00 for an old Hermance washing machine and I answered it. After a week or two Mr. Lyon came out and saw me. He looked at the machine,
1578 asked me about it, and he paid me the reward. He took the machine. After using for 58 or 68 years the machine for which my father I think paid $14, I received $25.00.

When using the machine, Defendants' Exhibit 20, with the dasher in it, we moved the handle back and forth, a half swing, moving it half way one direction and then half way the other direction. I did not notice when doing that how the water acted inside the rim of the dasher. I suppose that the water went through the holes either in the bottom of the dasher or in the sides of the upstanding ribs, but I did not notice how the clothes in the dasher acted

1579

with respect to the ribs. We simply put the cover on, moved it back and forth and paid no attention to what went on, when the clothes were clean we took them out.

I did not know Mr. Hermance but I know the name of the machine. I saw the name Hermance on this machine.

Re-direct Examination:

1580

I only saw the man who delivered the machine to my father once, some fifty-eight years ago. The name of the man who delivered the machine to my father was Horatio Graves. I saw him the day I first saw the machine.

We put the dasher in first, then the water and suds and then put in the clothes and put the cover on and handle and then turned it for the half swing. All the time I used the machine the cover was on, so I could not see what took place inside. I do not know whether the dasher rubbed the clothes or what took place in the machine.

1581

Re-cross Examination:

The salesman stayed all night at our place.

I cannot remember when I last saw the plate on the machine. It got loose and was catching on things and we tore it off. That was possibly twenty-five years ago.

The machine offered in the above deposition now offered in this case as Defendants' Exhibit 20.

(Marked Defendants' Exhibit 20.)

1582 *George A. Haag—For Defendant—Direct.*

The drawing of that machine was offered in evidence in the Brooklyn case as Defendants' Exhibit 81, and is now offered with the same number.

(Marked Defendants' Exhibit 81.)

Defendants offer the deposition of George A. Haag taken in the Brooklyn case by plaintiff and offered by defendants, together with exhibits therein, as Defendants' Exhibit J.

1583

Deposition of GEORGE A. HAAG, offered on behalf of Defendants.

Direct Examination by Mr. Loftus:

My name is George A. Haag. Age, fifty-six Residence, Peoria, Illinois. I have been engaged in the washing machine business with Haag Bros. since 1912, continuously.

1584 I was not so very much familiar with the Maytag gyrafoam machine, or gyrotator machine in 1922, in fact, I don't remember whether I was or not. I testified as a witness in the Altorfer-Dehle-Haag interference suit. In that matter I testified that along in the year 1922, one of our competitors was making a washing machine which was having a large sale and was the talk of the entire industry, and that my brother and myself had numerous conversations in regard to this machine. Along about fair time, which would be September or October, my brother suggested that we produce a machine

1585

to give these birds some competition. My brother suggested that we build a machine with a deep, large copper tub with a dolly post to the bottom, having a high center post, and to be driven from above the water line. I had reference to the Maytag submerged agitator type machine in my testimony.

The Haag Vortex machine shown with substantial accuracy in the Haag patent No. 1,563,624 issued December 1, 1925, and reissued as No. Re. 16,796 on September 27, 1927, is the machine I had reference to. At the time we brought it out we thought it was a new type.

1586

Q15. The Maytag machine to which you referred is shown with substantial accuracy in the Snyder patent No. 1,866,779? A. I don't know that I had seen that machine in 1922 or not.

Q16. I mean the Maytag you referred to that was giving you competition? A. I can't say. All I know is Maytag made a washer.

Q17. Do you remember a conversation about June, 1923, with your jobber, Mr. Judson Burns of Philadelphia, in which you discussed the Maytag type of machine, and he suggested that you ought to get one of these out to meet the competition, one of that order—or that in substance? A. Mr. Burns was out to the place some time, I think, in 1923, but I am not sure it was in June or when it was. That possibly might come up.

1587

Q18. Some time in 1923? A. Might have been.

Q19. Do you remember a conversation of that kind, or where that was the substance of the conference? A. At this time I do not remember what was said.

Q20. You do recall, though, a conversation

with him wherein that subject was discussed at that time? A. The Maytag machine?

Q21. Yes. A. No, I do not.

Going back to my deposition in the interference case, when I testified that the Vortex type built in 1923 was an entirely new machine from the ground up, that it had a different washing principle from any we had heretofore made, I was referring in this Vortex machine. The difference in the principle, as I understood
1589 it at that time, was that the dolly being inverted on the bottom instead of over the top. That is about the only difference I could see.

Mr. Hickman used to be our sales manager in our eastern territory. He was present when Mr. Judson Burns was present in 1923.

> The attention of the witness was called to a letter dated April 16, 1924, to Haag Bros. Co. from Hickman, in which he states: "Just saw Judson Burns—He is extremely enthusiastic about the new ma-
> 1590 chine and wants the first dozen demonstrators we made. He is particularly anxious now as Maytag are causing him a lot of worry here. I told him it would be perhaps sixty days before it would be ready." Witness stated he did not remember about the letter.

I suppose he was referring to the Vortex. I have every reason to believe it was the Vortex machine he was referring to.

Before we brought out the Vortex to put in competition with the Maytag I knew about the Maytag machine. I had a good idea what it was.

 1591

Referring to my testimony in the interference proceeding, the "birds" with whom I wanted to enter into competition were the Maytag people. The type of machine that created this anxiety on my part was a machine with the dolly on the bottom of the tub. It had legs, a tub, a short shaft going through the bottom of the tub, a gearing below the bottom of the tub for actuating the shaft. The dolly set down in the bottom of the tub and the top of the dolly, or the flat part of the dolly, was about even 1592
with the bottom of the tub. The upper surface of the bottom disc or plate portion of the dolly was flush with the adjacent bottom or inner surface of the bottom of the tub. There was a crevice in the bottom of the Maytag tub and this dolly fit down into it. I remember so testifying in that case.

I was familiar with the Maytag machine prior to the time we brought out the Vortex machine only through seeing it in circulars or hearing somebody talk about it.

We do not follow the practice of purchasing 1593
new types of washing machines as they are brought on the market by competitors.

Referring to a letter from Hickman, I do not recognize his signature, nor do I remember receiving any letters from him as Sales Manager while out on the territory.

I heard my brother testify in the interference proceedings.

The circular marked Plaintiff's Exhibit 38 (Tr. Ex. 59) looks like a Haag Bros. circular. They were put out in connection with the sale of our washing machine depicted there.

1594 *George A. Haag—For Defendant—Direct.*

The circular marked Plaintiff's Exhibit 38-A (Tr. Ex. 60) looks like one of ours.

The catalog marked Plaintiff's Exhibit 38-E and 38-F (Tr. Ex. 63) looks like one of our catalogs.

We also put out circulars that look like these circulars.

The advertisement marked Plaintiff's Exhibit 38-D (Tr. Ex. 62) is evidently one of our ads, but I don't remember it at this time.

1595 The Exhibit 38-B (Tr. Ex. 61) is probably one of our ads.

The circular, Plaintiff's Exhibit 65 (Def. Tr. Ex. 65), looks like the circulars we put out. They were put out three or four years ago.

The circular, Plaintiff's Exhibit 38 (Tr. Ex. 59), was probably one of the first ones we put out on the Vortex washer.

Plaintiff's Exhibit 38-A (Tr. Ex. 60) was put out about 1927 or '8, and the catalog, Plaintiff's Exhibit 38-E and 38-F (Tr. Ex. 63) was put out about 1927.

1596

(Said circulars, advertisements and catalog, offered in evidence as Plaintiff's Exhibits 38, 38-A, 38-B, 38-D [Tr. Ex. 59, 60, 61, 62] 38-E and F [Tr. Ex. 63] and Plaintiff's Exhibit 65 [Def. Tr. Ex. 65].)

Plaintiff's Exhibit 38 (Tr. Ex. 59) looks like the Vortex machine which we brought out to compete with the Maytag.

Q63. You don't see any difference? A. With the machine we brought out at that time?

Q64. Yes. A. No, insofar as the photographs is concerned.

Q65. It illustrates it and describes it with substantial accuracy, would you say that? A. This here circular is gotten out by an advertising agency and they handle the truth sometimes pretty reckless.

Q66. You were at all times familiar, weren't you, with the machine and the manner in which they illustrated it and described it? A. No, sir.

Q67. Who in your organization would be familiar with the manner in which you sold your Vortex machine? A. The Sales Manager generally would be more familiar with the advertising than I would. 1598

My position with the company was most everything. I don't pay an awful lot of attention to the circulars. We don't have any official positions at our place. The Haag Brothers is not a corporation. It is a partnership, and I am one of the partners. My brother is the other. The sales manager is employed by, and paid by, the partnership. 1599

Q81. You would not with your knowledge, would you, Mr. Haag, permit employees of your company to put out material in connection with the sale of your Vortex machine, illustrating and describing it, which was not a fair and accurate representation of its construction and operation? A. We try to be truthful, yes, sir.

I have seen part of the literature put out by our company in connection with the sale of our washing machines from time to time since we started to manufacture and sell the Vortex machine.

1600 *George A. Haag—For Defendant—Cross.*

Cross Examination by Mr Free:

With respect to the other statements in Plaintiff's Exhibit 38 (Tr. Ex. 59), the statement "Clothes are not rubbed" is a misstatement, and also the statement "Another feature of the New Haag Vortex is the fact that the clothes are above the Vortex, not below it. They are not subjected to a continuous rubbing and pounding." The action of this dolly in this
1601 washer is backward and forwards. Throws the water and clothes to the outside of the tub and returns in towards the center of the machine, and as they come in contact with the wings or the pegs of the dolly they are more or less rubbed and flushed through the clothes. It makes a good deal of difference as to the amount of clothes in the washer, as there are very few pieces that do not come in contact as much as when the machine is loaded down.

I would say that the rubbing of the ends of the wings or pegs on the clothes causes the
1602 clothes to become clean. Some of the clothes is hooked around the ends of the dolly wings and is pulled to and fro through the water. That, in conjunction with the action of the water, soap and suds, causes the clothes to become clean.

I would say the normal capacity of the machine shown in circular 38 is about six pounds, but I never weighed any.

I don't think that there is very much difference between the operation of a machine having an over-head dolly and one having an underneath dolly. They both take hold of the clothes and slush them through the water or rub on

them. Water on both types goes to the outer edge of the machine and returns in. As the clothes come in towards the center of the machine the ends of the wings, or the whole wing, gives them a good batting around. The rubbing of the wings on the clothes; and the slushing of the clothes through the water by the dolly cleans the clothes.

I have seen the over-head dolly machine in our own factory and my own house. It is known as what we call the 10-E. It is a machine with 1604
a drive shaft that went up through the bottom of the tub, with a dolly sleeve and the dolly slipped down over the sleeve—dolly or rub board. We had two different types of rub boards. One was about seventeen and a half inches in diameter and had large V shaped blocks about an inch and three-quarters in depth I believe. And the other one was the same diameter, or about the same diameter, with small cleats, about an inch deep.

The clothes were put in the machine and the dasher was slipped down on this dolly sleeve on 1605
top of the clothes. As the dolly became more or less water-logged, they wallered themselves, by the weight of them, down into the clothes, an inch or two from the top edge of the water, and would force the water down and to the outer edge of the tub, up and back in. If the flat dasher was not water-logged, it would stay mostly on top, pretty close to the top edge of the water. As the clothes floated around they came in contact with the wings or cleats of the dolly or rub board, causing the clothes to become clean. The clothes became clean as a re-

sult of contact with the cleats and the slushing through the water.

Defendant's Cross-Exhibit X shows our 10-E machine. When first brought out it was called the Royal. Cut A is the flat dasher with the large V-shaped blocks an inch and three-quarters deep.

The large flat board with the six triangular cleats, is the large flat dasher I just referred to to in my previous answers, the one marked A
1607 on Defendant's Cross-Exhibit X. It was supposed to operate on top of the clothes with the V blocks down. I see no reason why the dasher would not fit in and operate in our 10-E machine.

The dasher just referred to marked Defendant's Exhibit 60, and the agitator or dolly marked A on Plaintiff's Exhibit 19 (Tr. Ex. 32), looks like the same thing.

Referring to Plaintiff's Exhibits 20 and 21 (Tr. Exs. 33, 34), and comparing them with Defendant's Exhibit 60, it is smaller in diam-
1608 eter, being about fourteen and a half inches in diameter. The V blocks are the same thing.

The statement in each of the circulars, Plaintiff's Exhibits 19, 20, and 21 (Tr. Exs. 32, 33 and 34), in reference to the use of the cleats on agitator A: "They also serve to force currents of dirt cutting suds through the clothes, which reduce the amount of rubbing necessary to get the clothes clean," is a true statement. I don't know but my recollection is that the machine shown in these circulars, Plaintiff's Exhibits 19, 20 and 21 (Tr. Exs. 32, 33 and 34), must have been put on the market by our company about 1915 or '16. These particular dollies

that we just had reference to were put out about 1917 and '18.

The reference to the cleats of the dolly forcing "dirt cutting suds through the clothes and reducing the amount of rubbing" is the action which cleans the clothes, but I think the rubbing has more to do with it than anything. The clothes become hooked over the end of these V-shaped blocks and are wiggled around through the water.

I would say that the statements underlined in 1610
Plaintiff's Exhibits 38-A (Tr. Ex. 60) and 65 (Def. Tr. Ex. 65) are not absolutely the truth, for the reason that this here washer here would ball up the clothes and pound the clothes just the same as this one here, this flat dasher, would (witness indicates Defendant's Exhibit 60).

Referring to a sheaf of four circulars put out by Haag Brothers Co. relating to peg dolly, cylinder and oscillator machines, I would say that the statements there made are not absolutely true. As to what respects they are wrong, well, in this one, a cylinder washer it 1611
says: "The special arrangement of the agitator ribs, inside the cylinder gently tumbles the clothes without wadding or winding—leaving the materials at all times in a position that allows the soapy water to go thru every inch." Well, they are wrong to the extent that they do wind and wad up. The oscillator machine, it says here: "The Haag Oscillator does not rub." That is not a true statement. It does rub. The clothes are brought up on the baffle on the side of the tub, brought up about high enough so that the clothes tumble off, over and down into the corrugated baffle in the bottom

of the tub. Corrugations were put in there in the first place so they would rub on there.

This one here (indicating) about the dolly type of machine has really got me studying about that. It says: "To remove this dirt you must force water thru the screen and not merely rub over the surface." I don't know how to answer that.

I believe I answered this one (indicating).

XQ40. Now, as I understand it, certain state-
1613 ments in these four circulars are not true in every respect? A. That is what I would say.

To get clothes clean with the cylinder, peg dolly, agitator or any other machine, you have to rub them, take a hold of them and slush them through the water. We never paid an awful lot of attention to water action or agitator action, or anything of the kind. All the machines our company ever made washed clothes clean rubbing and slushing them through the water.

(Four circulars identified by the wit-
1614 ness offered in evidence as Defendant's Exhibit 61.)

The oscillator and the cylinder machines were put on the markets by our company somewhere between 1921, 23 or '4. The Haag Twin was put on the market about 1914 or some time after that, also the Ideal.

The only way I can account for the statements in the circulars that are not exactly the truth, generally a circular is turned over to an advertising agency, and his business is to put words in there to sell just as many washing machines as he can.

The 10-E machine, Defendant's Cross-Exhibit X, had a wood tub, a white cedar wood tub, corrugated both on the sides and bottom on the inside of the tub. In my opinion those corrugations didn't have any effect on the washing action in that machine. They were put in there because an electric washing machine is merely an off-spring of a hand washing machine. And in the old hand washers they had corrugated tubs in them; and when we started to manufacture electrical washing machines, we merely 1616
adopted the tub they had been using on the hand washing machines. We might have thought at the time we put them out that they had some really useful purpose. I never saw any wood tubs without corrugations, but I understand there has been some out. When was that? Years ago. 19—In 1916, '17, along in there. Or before that time. About 1920 we put out the Nuway in a copper tub, plain copper tub without any corrugations. It was put out with a dolly and a flat dasher. To my best recollection it was like Defendant's Ex- 1617
hibit 60, although we put out a great many with a dasher with smaller cleats about the same time. Referring to Defendant's Cross-Exhibit X, the type of dasher I refer to is both A and B. We sold our first copper tub Nuway machine with a dasher in some time in June, I believe June 11, 1920. The ledger shows that it was sold to Patriotic Relief Association, Averyville. I think we shipped out another one on the 14th to L. Stauber Hardware Company, in June, 1920. The book I have read from is a ledger of the Haag Brothers for June, 1920, but I never refer to it myself.

Offered in evidence as Defendant's Exhibit 62.

The two photostats of material now in evidence as Defendant's Cross-Exhibit W and Defendant's Cross-Exhibit Z show the copper tub machine I have been referring to, and the cut in the upper left-hand corner of the circular entitled "Haag Nuway Copper Tub Model 60-E" illustrates the copper tub machine I have been referring to.

1619

(Haag circular offered in evidence as Defendant's Exhibit 63.)

The leaflet marked "Dealers Confidential Price List, Haag Bros. Co.", effective September 1, 1920, is a price list issued September 1st, 1920.

(Said price list offered in evidence as Defendant's Exhibit 64.)

1620 The circular handed me, to my best recollection, is the first circular we got out after starting the manufacture of the Vortex washer.

(Circular offered in evidence as Defendant's Exhibit 65.)

I would say that was an honest circular.

I can identify another circular issued by Haag Bros. Co. It is what we call our Haag Eighty.

(Haag Eighty circular offered in evidence as Defendant's Exhibit 66.)

I do not notice any untrue statements in that circular.

Our company has been making machines of the dolly type continuously since 1912 or '13. We had what we called two types of washer. In one type of washer the dolly was driven through the bottom of the tub, and that machine we generally furnished both with a flat dasher and peg dolly. Later on, we did away with the flat dasher and peg dolly and put out an aluminum dolly which was a combination of the two. We also 1622
made what we called an over-head type. By that we mean a dasher that is driven down through the lids. And this was also furnished with both a flat dasher and a peg dolly. I would call the present type of dolly machine an improved dolly. The machine made now is much better manufactured, metal is used instead of wood.

In 1917 and '18 we might have considered the dolly in Defendant's Exhibit 60 slightly hard on clothes, but today it certainly ain't hard on clothes compared to today's machine. Defend- 1623
ant's Exhibit 60 and the modern dolly rubbed the clothes very severely. Today we would consider that necessary because they want to do a washing in five minutes when they used to be satisfied with doing it in about twenty.

The pegs on our peg dolly machine sold years ago were nearly three inches long, and the blades on the agitator shown on Plaintiff's Exhibit 38-D (Tr. Ex. 62) are about two inches high at the extreme end there, the high point. They act about the same as a regular dolly on the clothes, the old type wooden dolly. The difference between the Vortex dolly on Plaintiff's Exhibit

38-D (Tr. Ex. 62) and a peg dolly, the peg dolly did not have as much water action or throw water around quite as much in a light load, but when you come to load the machine down I don't believe there is much difference at all between the Vortex dolly machine and the old peg dolly machine with a full washing load, normal load, five or six pounds. That would be a normal load with a Vortex as well as peg dolly machine.

Witness produces dolly like that shown on
1625 Plaintiff's Exhibit 38-D (Tr. Ex. 62), like the first dolly put out with the first machine in 1924.

(Offered in evidence as Defendant's Exhibit 67.)

The sharper the blades of the Vortex dolly are (Defendant's Exhibit 67) the more they rub on the clothes. The more they catch on the clothes the faster they wash. The violent contact with the clothes will wear the blades right off there in time. I have seen an agitator with
1626 the blades pretty near all gone. Customers complained about the agitator blades wearing down. They send them back and want new ones.

Farm trade used our machine mostly in 1912. The farm clothes required hard washing to get them clean.

Our business kept on picking up every year until the depression set in a few years ago. So far as I know there was no loss in gross business on account of Maytag competition.

Regarding Mr. Ryan's statement that "It was necessary to raise the cover and remove the rub board dolly" in order "To turn the clothes over so they could be rubbed on the opposite side and

stir them up so as to rub part of the clothes that had not contacted either the rub board dolly or the corrugations in the tub," in the Haag rub board machine, I never heard of it myself. I wouldn't think it was necessary to turn the clothes over with a stick providing they did not load the machine down too heavy.

XQ123. Mrs. Gladys M. Ryan, also a witness for the plaintiff, said in putting the machine into operation, in answer to question 15: "Put the dolly in and close the cover and during the interval I would take the cover off, remove the dolly and turn the clothes over," and the purpose of that was "to take the ones from the bottom and put them on top so they would rub on the rub board." What do you have to say about that? A. I don't think it would be necessary. 1628

XQ124. Mrs. Ryan also said in reference to the rub board of your machine that "it was too hard on the fabrics. I tore the curtains. I had that experience so I didn't use it. I washed them by hand." In answer to Question 38 about washing blankets: "It rubbed all the wool off. I had about a peck and a half of wool in my machine after I got through that was in the blanket. The friction rubbed the wool loose from the blanket." What about that? A. I never heard of the rub board machine rubbing the wool off the blankets. The only reason they would do that, I would say, they overloaded the machines so there was not free action of the water. 1629

There was a substantial clothes circulation produced by the rub board dolly when the machine was filled with a normal load. In Defend-

ant's Exhibit 60 the water and the clothes would go to the outside—first go down like, hit the outside edge, and come up, and then return to the center of the machine. The circulation in Exhibit 67 would be substantially the same. They would be on the bottom of the machine—wouldn't have to go down. Go to the outer edge, up to the upper edge, and over to the center.

XQ129. And when the clothes got in contact with the agitator, what happened? A. Well, they
1631 would get batted around there and rubbed, pulled through the water. Several things happened there.

XQ130. What would happen to the clothes when they got in contact with the vanes in the over-head machine, such as Defendant's Exhibit 60? A. Same answer. Same happened, the same way. The agitators 60 and 67 would rub about the same. The bigger the diameter, the more severe action if run at the same speed. I think the dolly in Exhibit 60 oscillated around forty-five oscillations per minute. I think the first
1632 Vortex machine, with the dolly 67, operated about fifty-two. I don't think there would be much difference in the speed of turnover of the clothes in a machine with dolly 60 and a machine with dolly 67.

Re-direct Examination by Mr. Loftus:

I believe we were notified by the Maytag Company that they claimed we were infringing the Snyder patent by our Vortex machine. I seen Mr. Free, counsel for defendant, considerably in the last two or three years, and I saw him yesterday. He talked about those dollies, Defendant's Exhibits 60 and 67.

We have been kind of dumb. We didn't know that this thing had that action until about two or three years ago. I would be surprised to find out that it did not have it.

We made a peg dolly machine at one time, in 1913, and we have continued up to the present time, although we have not made many in the last few years. In the last couple years we have made a couple dozen wood peg dolly machines, maybe. We made the twin, which had a peg dolly, up until two or three years ago. That is 1634
the machine with the peg dolly and the rub board dolly. We discontinued that about three years ago.

We started making the cylinder machine about 1922. It did not last long, about two years.

We started making the oscillator about 1923. I think we made the cylinder first. The oscillator only lasted a couple of years.

We put the rub board like Defendant's Exhibit 60 out in 1917 and 1918. I couldn't tell how long we had them, about a couple of years.

The rub board in Defendant's Cross-Exhibit 1635
X, marked with a large B, lasted as long as the washer almost. No, it ain't. Let's see. Cut that out and used an aluminum one about 1925. But we do send out a lot of them in repairs yet. We first brought out the aluminum rub board in 1925, I think. We send out a few yet for repairs. We sell a very few of them yet. It was taken off the market a couple of years ago for all practical purposes.

In 1925 we brought out the combination peg and aluminum dolly for what we call our 10-E. We had a big sales of that right up until we

brought out the Haag Eighty, somewhere in 1926 or '7.

Comparing the peg dolly with the Vortex sales, we made more machines then than we do now.

It is a fact that practically all the washing machines manufactured and sold by us now utilize the submerged agitator type. That has been true for quite a little while; up to a couple of years ago. We had to switch to it because our competitors did but I don't think it is a
1637 better machine. Trade demanded the other type and we went into the submerged type.

Referring to my statement made in the interference case in March, 1931, when I said that, relating to our Vortex machine: "This was an entirely new machine from the ground up. It had a different washing principle than any we had heretofore made." I meant by that statement that the dolly was on the bottom of the tub, and that is the difference in the washing principle I meant in that statement.

I testified at that time that our Vortex ma-
1638 chine "had a different washing principle than any we had heretofore made," and I believed that statement at that time, and I believed that statement from the time I brought the Vortex out at least until I testified in 1931.

In the interference case I testified that the first machine having a cylindrical metal tub of straight up and down sides was on this new type washer which was made in 1923.

RDQ78. How did the sales of this peg type dolly machine compare with the sales of your submerged agitator type machines during the year 1932? A. Well, of course, the submerged

agitator at that time was a way out in the lead, of course.

RDQ79. How about 1931? A. Not quite so much.

RDQ80. 1930? A. Well, as we go back further it got more evened up. Get back to 1927, or the time we had the Haag Eighty, I think it was about even, about fifty-fifty, that is as near as I can remember.

RDQ81. 1927, did you say? A. Around 1926 or '7. 1640

RDQ82. Can you give us the comparative figures from 1927 on? A. Could I give you?

RDQ83. Yes, on the percentage basis or— A. I couldn't now, no.

RDQ84. Did you keep any records of that? A. I don't know whether there is a record of it or not, for all the years that far back.

RDQ85. You do know this, however, that the sales of the other types gradually diminished and the sales of the submerged agitator type gradually increased? A. Oh, as the years went along, yes; I admit that. 1641

RDQ86. Until they were all driven from the market by the submerged agitator type, that is right, isn't it? A. As the years went on, yes.

In the machine using the peg type dolly, its operation was largely one of rubbing and swishing and jerking the clothes through the water, and that is how the cleansing was done. Both the peg type and in this type (witness indicates Defendant's Exhibit 60).

I testified that in the operation of these rub board machines that our company made for a while and that were later discontinued, that the washing operation was one largely of rub-

bing the clothes and swishing them back and forth through the water, and that in the cylinder and oscillator machines, which we made for a very short period, the washing operation was one of pounding and jerking and rubbing, and flushing the water through the clothes.

The information utilized in preparing the circulars and catalogs in evidence as Plaintiff's Exhibits 38, 38-A and 38-E (Tr. Exs. 59, 60 and 63), is obtained from someone with the company.
1643 They are told to get out this stuff. Generally the sales manager or the man who got it up okays the copy of the advertising matter. That is his duty.

The usual practice, but not always, is that if he does not understand the device he obtains his information from the engineering or mechanical department as to the construction and operation.

The one who prepares the copy naturally has to be familiar with the product.

RDQ99. I imagine your practice is the same as all other plants. A. Why, I suppose so. But
1644 I believe we possibly don't give that stuff as close attention as the majority of manufacturers. I state that for this reason: My brother and myself are primarily in the manufacturing end of the business. We don't like to be up in no office. These catalogs and circulars are gotten out by men in our employ, and we pay for them.

RDQ102. Now, is it a fact, Mr. Haag, that when you first tried out the rub board with the deep ribs, such as shown in the cut marked large A in Pl. Ex. 21 (Tr. Ex. 34) you found that the rubbing action was too severe on the clothes and for that reason went to the lower rib, such as

shown in B on Defendant's Cross-Exhibit X? A. I wouldn't say that as being entirely true.

The reason we went to the disc as shown in B on Defendant's Cross-Exhibit X, from the disc with the deep ribs shown in the cut marked large A in Plaintiff's Exhibit 21, we had the peg dolly that was supposed to take care of heavy clothes; and we thought that the little ones which we got along with the tubs from the Richmond Cedar Works was plenty good enough. They made these ones there. We had to get 1646
these wherever we could. We had both the deeper ribs and the lower ribs. After we made a few of the ones with the deeper ribs, then for a while we went to the ones with the lower ribs. The ones with the deep ribs is harder on the clothes than the little one. I would not say that was the reason we preferred the ones with the lower ribs, but in any event, we did go to the one with lower ribs. In fact, at that time we did not know anything about rubbing action, water action, or anything. We sold that for a while with a twin tub, an example of which is shown on Page 20 of our 1647
catalog, Plaintiff's Exhibit 38-E (Tr. Ex. 63). We discontinued that several years ago. We put an aluminum one on there. An aluminum rub board supplanted the wooden rub board with low cleats, and then the aluminum dolly, either peg type or rub board type, supplanted the wooden dollies, and in the time the under water agitator type supplanted the aluminum. That also supplanted these other machines I referred to on cross examination, as shown in Defendant's Exhibit 61, which shows the peg type, the cylinder type, the oscillator type, they gradually went off the market and were supplanted by the

under water agitator type. The number Eighty, which had an aluminum rub board type, has been supplanted too by the under water agitator type. There are still quite a few of the overhead type being made but they have been practically supplanted by the under water agitator type.

I don't know whether the vacuum cup type is practically off the market. I don't hear much about it.

I suppose it is true that I cannot now sell the
1649 overhead rub board type or the peg dolly type in competition with the submerged agitator type and meet the competition or get the business, and the same, I suppose, is true with respect to the cylinder, the oscillator and the vacuum cup.

The circular marked for identification Plaintiff's Exhibit 66 (Def. Tr. Ex. 66) was put out by our company in the regular course of business in connection with the sale of our Vortex washing machine. It was put out in 1926 or 1927. That is one of our circulars that has been produced here in accordance with your request.

1650

Witness also identifies circular put out by his company in connection with the sale of its Vortex machine.

It appears to be a duplicate of Plaintiff's Exhibit 38 (Tr. Ex. 59).

The company also put out circular marked for identification Plaintiff's Exhibit 67 (Def. Tr. Ex. 67) in connection with the sale of the Vortex washing machine. That was gotten out possibly five or six years ago.

We also put out the circular marked for identification Plaintiff's Exhibit 68 (Def. Tr. Ex. 68) in connection with the sale of our Vortex ma-

chine. We started putting that out five or six years ago.

We began making the gasoline motor driven Vortex machine about four years ago. It must have been around 1927. It was intended for the farm trade. I know we had it on that Sixty and on that Seventy. I couldn't tell the exact years though.

We did not have the submerged agitator like Defendant's Exhibit 67 very long, a year, something like that. Then we went to the one that 1652
was somewhat like Defendant's Exhibit 67. Possibly in 1927 or 1928 we went to one like Plaintiff's Exhibit 66 (Def. Tr. Ex. 66). We had that one like Defendant's Exhibit 67 out at the Fair Grounds in 1924, in the fall, and sold a few of them that year and I believe a few in the spring of 1925. I think we brought out the one shown in the "Seventy" circular in 1927.

I can't tell you that prior to July, 1932, most of our submerged agitator type machines sold had the type of submerged agitator illustrated in Plaintiff's Exhibit 66 (Def. Tr. Ex. 66), but 1653
we did use a great many of that particular one.

The circular marked for identification as Plaintiff's Exhibit 69 (Def. Tr. Ex. 69) was put out by Haag Bros. in connection with the sale of their Haag Vortex submerged agitator type of washing machine.

The circular marked Plaintiff's Exhibit 70 (Def. Tr. Ex. 70) was one of our circulars put out in connection with the sale of our Vortex washing machine.

The statement in our circular that the "submerged agitator runs at about fifty-five oscilla-

tions per minute in the square tub" is right. The oscillations in the round tub are about the same. We run a little faster, maybe a point or two, in the round tub.

The catalogs marked for identification Plaintiff's Exhibits 71 and 72 (Def. Tr. Exs. 71 and 72) were put out by our company in the regular course of business in connection with the sale of Vortex machines.

1655 *Re-cross Examination by Mr. Free:*

As to how the submerged agitators or dollies shown in circulars from 66 to 70, and catalogs 71 and 72 operated (Def. Tr. Exhibits), the dolly makes about forty-five strokes a minute, goes around about five-eighths of a turn and back, and water is forced from the dolly to the outside of the water and the clothes is forced from the dolly to the outside of the tub, back in again, and as they come in the wings gives them a good batting around there and rubs them and flushes
1656 them. The washing machine runs at a speed of about forty-five complete back and forth a minute. Fifty-two to fifty-five on these types, and forty-five on this old type.

The action on the clothes of the more modern dollies, shown in the circulars, compared with the action of the clothes of the Vortex dolly, Exhibit 67, is practically the same.

RXQ3. With a full load of clothes in the tub, in your modern machine shown in these circulars, can you see the rubbing which is taking place on the clothes by the blades? A. Not after you put soap in the water and the water gets dirty right away, you can't see it.

RXQ4. That is one sales advantage of the modern machine, isn't it, that you can't see the rubbing going on at the bottom of the tub? A. Yah.

RXQ5. Now I want to refer again to the question and answer to which Mr. Loftus referred in his direct or re-direct examination about the cylindrical metal tub. In answer to Question 122, in this Altorfer interference case, which reads as follows:

"When did your firm first build a machine 1658
having a cylindrical metal tub?"

Your answer was: "The first tub of this description was on this new type washer which was made in 1923."

As I recollect, you qualified your answer by saying that you meant a straight-sided tub.

A. I understood a cylinder means straight up and down.

We put out some tubs with walls which were not straight up and down, copper tubs, in 1920. Those were the copper tubs I had reference to in my previous cross examination. 1659

Re-re-direct Examination by Mr. Loftus:

Defendant's Exhibit 66 shows the metal rub board that I referred to, put out by our company. The one that was put out in 1925 was pretty nearly like it.

The first metal rub board had three pegs on it in place of them flat. As far as I can recollect, our first metal rub board was put out about 1925. Possibly there was some in '24. The one shown in the circular, 66, followed the first form.

1660 *George A. Haag—For Defendant—Re-cross.*

Re-cross Examination by Mr. Free:

I don't know that the machine shown in Defendant's Exhibit 66 went on the market in 1925. I think our big sales on that was about 1927. Then we sold it for a year or two up to 1929 or '30. We finally converted it over and put a submerged agitator in it.

Re-direct Examination by Mr. Loftus:

1661

That machine illustrated in Defendant's Exhibit 66 was, in time, entirely supplanted by the submerged agitator type machine.

Re-cross Examination:

We had both the Eighty and the submerged agitator type at the same time for a period of years in that very same machine.

Defendant offered Defendant's Exhibits taken in connection with the Haag Deposition as follows:

1662

Exhibit 60, Haag dasher.

Exhibit 61, Haag circular of the cabinet electric machine.

Exhibit 62, Haag ledger sheet.

Exhibit 63, Circular of Haag Nuway washer.

Exhibit 64, Haag dealers price list.

Exhibit 65, Haag circular "New Number In House of Haag."

Exhibit 66, Haag circular "Haag 80."

Exhibit 67, Haag "Vortex Dolly" (marked Deft.'s Exhs. 60 through 67).

Plaintiff's exhibits in Haag Deposition offered at the trial by Defendant as Defendant's Exhibits:

Exhibit 65, Haag Vortex Circular, Form M-134.

Exhibit 66, Haag Vortex Circular, Form M-100.

Exhibit 67, Haag Vortex Circular, Form M-131.

Exhibit 68, Haag Twin-Tub Circular, 1664
Form M-139.

Exhibit 69, Haag Vortex Circular, Form M-108.

Exhibit 70, Haag 80 Circular, Form M-119, Model 80-B.

Exhibit 71, Haag Catalogue, "A Complete Line of Quality Built Washers."

Exhibit 72, Haag Catalogue, "Builders of Fine Washing Machines Since 1912" (marked Plaintiff's Exhibits offered by Defendant as Defendant's Exhibits 65 thru 72). 1665

The following Plaintiff's Exhibits in the Haag Deposition, which were not included in Defendant's offer, now offered by Plaintiff as follows:

Plaintiff's Exhibit 38 offered and received as Plaintiff's Tr. Ex. 59.

Plaintiff's Exhibit 38-A offered and received as Plaintiff's Tr. Ex. 60.

Plaintiff's Exhibit 38-B offered and received as Plaintiff's Tr. Ex. 61.

Plaintiff's Exhibit 38-D offered and received as Plaintiff's Tr. Ex. 62.

Plaintiff's Exhibits 38-E and 38-F offered and received as Plaintiff's Tr. Ex. 63.

Mr. Edmonds: I offer in evidence under the same designation Defendants' Exhibits in connection with the deposition of Ray Ryan, designated as:

Cross-Exhibit W, a page from House Furnishing Review.

Exhibit X, a page from an advertis-
1667 ing circular of some company.

Exhibit Y, a page from a Haag circular.

Exhibit Z, a catalogue of the company named Luthy & Company (marked Deft's Exhs. W, X, Y and Z).

Mr. Edmonds: Defendant also offers in evidence a circular offered in the Deposition of F. L. Maytag as Defendant's Exhibit 1 in the Brooklyn-Edison case, as Defendant's Exhibit 1. (Marked Deft.'s Ex. 1.)

And there is one patent additional to
1668 those that I offered in evidence on behalf of the defendants, namely, Patent 83,764, granted to W. Cooper, November 3, 1868, "Improved Washing Machine." The drawing of this patent appears on page 2434 of the record in the Brooklyn-Edison suit.

(Marked Defendants' Exhibit L.)

(Counsel for the Defendant offered Plaintiff's Petition for Rehearing in the Brooklyn-Edison case.)

The Court: I will make the same ruling with respect to that that I did with respect to the other parts of the record in the

1669

Brooklyn-Edison case. It may be marked as an exhibit for identification.

(Marked Defendant's Exhibit M for identification.)

DEFENDANT'S PROOFS CLOSED.

Mr. Loftus: In connection with the 1900 Depositions, so-called, introduced by Mr. Edmonds, there were two cross-exhibits on behalf of Plaintiff. One was Plaintiff's Exhibit No. 2, and Plaintiff's Cross-Exhibit No. 1. We offer those two exhibits in these cases as Plaintiff's Cross-Exhibit 1 as Plaintiff's Exhibit No. 55, and Plaintiff's Cross-Exhibit No. 2 as Plaintiff's Exhibit 56.

1670

In the Miller so-called depositions, introduced on behalf of the Defendant, likewise there were two cross-exhibits produced and identified on behalf of Plaintiff. One was Plaintiff's Exhibit 4-A, and we offer that in this case as Plaintiff's Exhibit 57; and the other was a circular identified in the Brooklyn-Edison case as Plaintiff's Exhibit 103 and in the Deposition Plaintiff's Cross-Exhibit No. 3. We offer that in these cases as Plaintiff's Exhibit 58.

1671

REBUTTAL PROOFS.

Mr. Loftus: I offer in evidence the testimony of George L. Miller, William J. Elliott, Joe Stephen, David L. Mooar, Roy A. Bradt, John E. Herbst, Charles V. Thornton and Frederick F. Mason.

1672 *Case.*

The testimony of these witnesses was given in The Maytag vs. Brooklyn case, and there is a written stipulation in the present cases, approved by Judge Knox on April 23, 1937, providing that such testimony may be used in these cases with the same force and effect as if taken and received herein.

I also offer each and all of the exhibits referred to and identified in those depositions, under the same numbers as they were designated in the other litigation. There will be a gap there. It is a higher number, but we will have to make up the tags and have them numbered. These exhibits take the numbers 168, 169, 170, 170-A, 170-B, 170-C, 170-D, 171, 172, 172-A, 173, 174, 175, 175-A, 176, 177, 182, 183, 184 and 188. I offer those in these cases under the same numbers.

1673

(Marked Plaintiff's Exhibits 168, 169, 170, 170-A, 170-B, 170-C, 170-D, 171, 172, 172-A, 173, 174, 175, 175-A, 176, 177, 182, 183, 184 and 188, respectively.)

1674

Mr. Loftus: I also offer in evidence Plaintiff's Exhibits bearing the numbers 209, 210, 211 and 212.

(Marked Plaintiff's Exhibits Nos. 209, 210, 211 and 212.)

Mr. Edmonds: Have you offered the Cross-Examination along with each of the depositions?

The Clerk: The whole deposition.

George L. Miller—For Plaintiff—Rebuttal—Direct 1675

Testimony of GEORGE L. MILLER, witness called on behalf of plaintiff, taken from Brooklyn Edison record.

Direct Examination:

Residence, Newton, Iowa.

I work in the experimental department of the Maytag Company. I first entered the employ of the Maytag Company in 1903 and worked there continuously following that time up until August, 1919, when I left on account of my health, going to Denver, Colorado, on the doctor's advice, where I stayed four months. When I returned I went to work for the Maytag Company again in December, 1919. When I got back to the Maytag Company I took care of the trucks and tractors. I was engaged in that work for about five months. When I got back to the experimental department my work was working generally for Mr. Howard Snyder. 1676 1677

For seven years prior to August 1, 1919, I was an expert on agricultural machinery, band cutters and self-feeders. Then, I worked in connection with the experimental department after that seven-year period save for the time I was out that I spoke of.

I had not known Mr. Howard Snyder previous to 1903. He died in 1927. Mr. Snyder was head of the experimental department and I saw him experimenting on washing machines. The first washing machines I saw Mr. Snyder working on were wooden machines. Plaintiff's Exhibit 90 (Tr. Exhibit 6) is one of them. That is one of

1678 *George L. Miller—For Plaintiff—Rebuttal—Direct.*

the hand-operated corrugated machines. The Maytag Company made the same kind of machines with power means, for driving it. They were sold to quite an extent for, I imagine, five or six years.

In 1915 we made an aluminum machine with a round tub, corrugated at the bottom and the sides, and a high post in the center, and it extended up above the water line and a sleeve ran
1679 down back through, to which the agitator was fastened, so that it operated. The center post was arranged right in the center of the machine, and this sleeve extended down so that the agitator would not ride on the bottom when it was cleared down, so there would be a clearance. I just assembled it. The machine was about 22 inches in diameter and about 16 inches deep. The dolly was a peg affair, attached to a wooden disc —not exactly a peg, a paddle. The paddle had ribs about three-quarters of an inch high, and the paddle was about 3¼ inches high, and about
1680 an inch and a half or three-quarters wide, and there were four of those. They were mounted on a circular wooden base. The corrugations were all around the tub. At the bottom the tub was conical. The sides were straight. The tub was made of aluminum. We first assembled this aluminum corrugated tub machine about April of 1915.

Witness identifies drawing on blueprint No. 4325, dated 11/13/14 taken from the files of the Maytag Company as the tub.

The blueprint No. 4326 shows the cover. It is dated 4/23/15.

No. 4332 shows the dolly. It is dated 4/15/15.

1681

The dolly is of aluminum. There are four paddles. This slid down over the sleeve in the machine which oscillated this agitator. This is a cross section of the paddle. The view at the right of the machine is a plan view looking down, and the one at the left is a side elevation. The screw-holes were to fasten this by a wooden, circular disc.

1682

Marked with red pencil X the blades witness referred to as being three-quarter inch wide and three-quarter inch high.

No. 4333 shows the dolly post. It was cored out in the center and with two flanges on the outside. I have marked the flanges with A. It was put on a shaft which came up through the bottom of the machine with a taper pin. The dolly was held in the bottom of this tub when it was operating by this post—this slid down over that post. It was held at the bottom with a wedge. The rack bar drove the dolly post.

1683

No. 4327 shows the center post. That was put in the center of the tub so that the water would not run down through there. It extended up high enough, up above the water level at the end, so the water would not run down through. That extended about level with the top of the lid.

(Various blueprints—4325, 4326, 4327, 4332 and 4333—marked Plaintiff's Exhibit 168 for identification.)

(Photostatic copies offered and received in evidence as Plaintiff's Exhibit 168.)

After we assembled that machine, we experimented with it in the experimental department

of the Maytag Company. It has been there continuously since it was first put in there.

The witness identifies machine in the room.

That has on it the same stamp markings that were on the blueprint.

The impeller is mounted the same way it was assembled in 1915. The machine was operated at a speed of about 52, that is 52 strokes per minute, back and forth. Referring to the operation
1685 of the machine as I saw it at that time when there are no clothes in the machine and it is running up to speed it had a rolling action in the water, but when the clothes were put in they would hang on the pegs and that would destroy the roll. When the clothes caught on the pegs, the clothes rubbed on the corrugations and the clothes then were washed by rubbing. You could see the clothes scrubbing along on the corrugations by the amount of brightness that was left there.

I have seen these old wooden machines, with
1686 corrugations, that have been out a number of years, with corrugations practically all worn off.

Mr. Snyder and I tried out that aluminum washer a good many times.

(Aluminum tub offered in evidence as Plaintiff's Exhibit 169.)

After I came back in 1919, and went back to the experimental department some 5 months after I had worked outside, that same day Mr. Snyder gave me an order to make a machine out of a wooden tub with a power leg, Model 70, and drive it through the bottom. As a result of the explanation of Mr. Snyder to me, I built

up a machine with a power leg and made an agitator to put into the bottom of it. It was just an ordinary tub that we had been using for wooden washing machines, and the power leg was off what we call the Model 70, which was a machine which was just being put into production and had not gone far. I had a disc made out of No. 16 iron, galvanized, and cut 16 inches in diameter and turned down a half an inch, which made it 15 inches in diameter. Joe 1688
Stephen, who is in the tinshop or blacksmith shop, made it for me under my direction. We had paddles attached to this and laid out for six, put on six and three. They were about an inch thick. They were equally spaced near the outside edge, radially arranged. Those wooden blades were about an inch and a half wide, about four or five inches long. By "wide" I mean the length. They were an inch and a half high. That was positioned right in the center of the tub, at the bottom, and was driven by rack bar and gear from the power leg and electric motor. We built 1689
up a frame on the legs and mounted it on the base. The motor in that machine was placed down below the bottom. The blades were about seven-eighths or an inch thick.

Witness makes a sketch of this machine. Also draws a top view looking down.

I have shown the tub marked "tub" and the agitator marked "agitator," also "power leg" and "motor." Roughly speaking, that is representative of my understanding of that structure. The diameter across the bottom of the tub was between 22 and 23 inches.

1690 *George L. Miller—For Plaintiff—Rebuttal—Direct.*

During the time between December 1st and the time I went into the experimental department, I had occasion to see Mr. Snyder quite often. It was through his suggestion that I came back to the experimental department. After that time I saw an aluminum tub, aside from the one that was offered in evidence here this morning. There is one in the room here, with the dolly. It has a wooden square plate on the top of it, and
1691 that machine was operated there and I saw it in operation. They were experimenting with it for the purpose of putting it into production. It was put into production in 1920. It was not very popular. It did not wash very good on account of the smooth tub. It operated by an oscillating motion, the clothes catched on the agitator. The agitator slid up and down the center post, and was driven from the top.

After we made the other machine, the one I made a drawing of, Mr. Snyder and I kept on experimenting with this one and then later on
1692 this one with the wooden peg dolly. It went into production in the latter part of 1920.

In 1921 we got to work on the one with the vacuum cups. We operated that. Some of them were sold the latter part of 1921. They did not stay on the market very long, three or four months. It did not work so well. I tried to wash clothes in it with very poor results. None of these machines have been made since the early part of 1922 by the Maytag Company. It was known as the Model 70. The power leg I spoke of was taken from this machine, and its purpose was to drive the dolly on the gearing from the motor. It came up over the top of the tub.

1693

(Model 70 offered and received in evidence as Plaintiff's Exhibit 170.)

(The dolly with the wooden base and blades offered and received in evidence as Plaintiff's Exhibit 170-A.)

(The dolly with the vacuum cups on it offered and received in evidence as Plaintiff's Exhibit 170-B.)

(Sketch made by the witness of the wooden tub machine offered and received in evidence as Plaintiff's Exhibit 171.)

1694

After I made that machine, according to Mr. Snyder's directions, I took it to Mrs. Ellingsworth, who did washing. She lived in the northeast part of Newton. We did not operate the machine very much before we took it out to Mrs. Ellingsworth. Just to see if it would run, that is about all. We put clothes in it, it had a rolling action. We operated it at a speed of 52 to 58, tried it at various speeds. I saw it used with both three and six blades. I took the machine 1695
to Mrs. Ellingsworth and instructed her how to use it. I saw her operate the machine with clothes in it. I saw in the operation of that machine, a rolling of clothes and washing through the water. After we took the machine out to Mrs. Ellingsworth it broke all to pieces; had to bring it back and rebuild it. The rack bar broke. It was patched up in about the same condition, tightened up a little bit, and took it back again. We changed the impeller from one to another three or six blades and it was there for sometime, probably two or three months. Then the bottom bulged up so that it stopped the agitator

1696 *George L. Miller—For Plaintiff—Rebuttal—Direct.*

and would not function any more. I saw it on various occasions during those two or three months at Mrs. Ellingsworth's. She did work for outside people besides doing this experimental work on our machine. She washed all kinds of clothes. I saw her wash shirts that came out of the factory to very fine clothes. I saw them actually washed. They were in clean condition after they came out of the machine.

1697

Mr. Lane: I offer to prove by this witness that at the time Mr. Snyder suggested to him to make this wooden tub machine, that he has already described, and put in the dolly in the bottom of the machine with the flanges shown in the drawings, that he suggested to Mr. Snyder that he use the aluminum tub machine, Model 70, for that purpose, instead of the wooden tub machine, and that Mr. Snyder advised him that the aluminum was cost-

1698 ing so much that the company was objecting to the sale of machines at that time embodying aluminum tubs, and for that reason he wanted to try it out in the wooden tub machine and see if they could not get the operation of that satisfactorily in that type of machine.

I was requested by Mr. Lane to make a replica of that machine from my own independent recollection and I did it. I had no help in doing it. It is here. It is the same as to the proportion of parts in the relative arrangement of the machine as compared with the machine

I made for Mr. Snyder in 1920. It has the power leg that I referred to that I took from Model 70 machine, and in the bottom of that tub there is a disc which has three blades. Those six screw-holes in that plate are where you can add on the other three blades. The mechanism on the side of the tub is to throw it in and out of gear. When it is one way the gear contacts the gear on the dolly and rotates it, and when it is this way it is out of contact. 1700 This is an oscillating device.

(Said machine offered and received in evidence as Plaintiff's Exhibit 172.)

I know Mr. D. Mocar. He was a draftsman with the Maytag Company. He saw this machine. He thought it was a pretty hot looking thing and wanted to know if I was taking it out somewhere to use it and I told him I was and he thought it was a pretty hot looking pill to take out to use. We experimented quite 1701 extensively in connection with the various kinds of blades and so forth on that wooden machine.

Q238. What did they do if you know—what did Mr. Snyder do? A. They made them larger and smaller and finally they came to a certain size.

I did not see a wooden machine like this in operation at Mrs. Ellingsworth's the following year, but I saw an aluminum machine up there. That was sometime in the summer of 1921. It was a Model 70 made into a bottom-driven machine. We used a bottom-driven tub, with power

leg of that construction, except the bottom part. An agitator with four blades driven from the bottom was inside of that tub. The agitator had a kind of cone in the center and flared out, something in the shape of the bottom of the tub, I guess. It formed part of the tub. I took the machine out there. It remained there a long time. I saw it operated there. Mr. Howard Snyder and F. L. Maytag saw it out there with
1703 me. Mrs. Ellingsworth did washing with it, and I saw her do it. She did washing for probably 17 or 18 a week. I saw the machine out there a good many times. I used to go out there quite often. Several times I saw it out there with Mr. Snyder. I saw it once, that I recall, with Senator Maytag. It was demonstrated at that time for Senator Maytag. The rolling of the water caused the clothes to circulate through the water. The machine was driven by motor. The dolly was being operated with a rack bar, working back and forth, oscil-
1704 lating the dolly. The oscillation was at the rate of 52 revolutions of the crank. It must have been along in October, 1921, that Senator Maytag saw that machine with me. I timed the operation. We always put the clothes in the machine and whenever it had any tendency to obstruct the action of the water, that was the load. We tested the machine with various loads and we kept records of the time. We never weighed the clothes. It took from three to seven minutes to wash ordinarily dirty clothes. From my observation of the old peg dolly type, it took from twenty to forty minutes. I have never had both of these machines at my home

at the same time. I have had them separately at my home. I had in my home a Maytag peg dolly, had a cylinder, and the present machine, known as the Model 80—30. I have actually washed with each of these machines at my home. My wife also has done so.

Preparations were made to put the Model 80 machine into production at the Maytag plant.

I see the machine that was taken out to Mrs. Ellingsworth's house, operated there in the fall of 1921, here in the courtroom. 1706

(Said machine offered and received in evidence as Plaintiff's Exhibit 173.)

That machine has been in the experimental department most of the time since it was out to Mrs. Ellingsworth's, until it was sent here for the trial. The mechanism at the top which apparently was not in use was made from the Model 70. This machine drives from the bottom. The machine demonstrated at Mrs. Ellingsworth's in the fall of 1921 is the machine here in the courtroom. 1707 I changed that machine over from the way it was to the new type as shown here. That was done in 1921, in July or August or September. I made the hand-made lever on the outside of that machine. I took it out to Mrs. Ellingsworth's. I saw it probably a year after it was brought back from Mrs. Ellingsworth's. It has been in the experimental department ever since. I don't know, I cannot say that Mr. Elliott worked on the pattern work to make the dolly in the bottom of the tub, but he probably did. I used an old Globe valve with packing in it in the machine to prevent

leakage of water. I put that in the bottom of the tub. We did not have so much trouble with leakage then, but we did later on after we got into large production. The shaft went into the impeller with a square torque. The driving post projected probably a couple of inches into the center of the impeller. After I had seen the machine in operation at Mrs. Ellingsworth's house, the Maytag Company arranged the tub
1709 a little differently when they were ready to go into production. I never had much to do with that work.

The company put the machine on the market commercially about 1922. In the forepart of 1922. I do not know the exact date. I have given these dates from my own recollection.

The card marked "George L. Miller" with the date "Began 12/1/19" is the date I went back to my employment. The card says "Department 18" that was the maintenance department. Then the card is marked "5/13/20"
1710 when I was moved to "Department 3." That was the experimental department. That shows that I went back to the experimental department on May 13, 1920.

The photograph shows the Model 70 with the flange peg machine, the first one, and the one marked as Plaintiff's Exhibit 170, with the dolly 170A, is that machine.

(Photograph marked for identification as Plaintiff's Exhibit 170C.)

The next photograph is the Model 70 with the vacuum cup dolly. I was shown that machine in 1921.

George L. Miller—For Plaintiff—Rebuttal—Cross. 1711

(Marked Plaintiff's Exhibit 170D.)
(Said photograph marked Plaintiff's Exhibit 170C in evidence.)

170D is a photograph of the same model with the so-called vacuum cup impeller.

(Received in evidence as Plaintiff's Exhibit 170D.)

1712

Cross Examination by Mr. Edmonds:

As near as I can fix it, the machine shown in Exhibit 170 went into production the latter part of 1920. It was known as the Model 70. It continued in production probably six or eight months. In that machine that was made and sold during that period of six months, the dolly was constructed as illustrated in the photograph 170-C. The dolly on these machines had a square wooden board with a casting fastened on it. After the period of six or eight months the 1713
company went on to the manufacture and sale of 170-D. The only difference between 170-C and 170-D was the construction of the dolly. We did not give it a new model number when we changed to the vacuum cup. We sold the Exhibit 170-D I suppose until model 80 was put in production. That is the Exhibit 170-D was in production and on sale beginning in the summer of 1921 and extending to the forepart of 1922. The machine in the courtroom, Exhibit 173 except for the dolly and the different arrangement of the drive mechanism, is the same machine as Exhibits 170-C and 170-D. I had

nothing to do with the shaping of the dolly in Exhibit 173 but I did in the machine Exhibit 172. I made the vanes for this latter machine of different shapes. We made a carload of different shapes, different in height, that was about all there was to it.

The Court: When you say you made a carload, you mean you made a good
1715 many, is that right?

The Witness: Yes.

I don't recall any difference between them, except as to height. These ones in this recent model which I have made, have the corners cut off at the inner ends of the blades. All of those were more or less the same, but there was not any square, though. I don't recall any specific differences. All the blades were about the same thickness.

XQ370. That is, you don't know whether or
1716 not those in this model here are exactly the same thickness as the ones you used five or ten years ago?

Mr. Lane: He said they were the same thickness, but they changed the type.

Practically speaking there wasn't any difference between these innumerable blades that I made and experimented with 15 years ago. It was just a matter of form. That includes differences as to height and shape and thickness. There was probably little differences in their radial length. All those differences I considered

differences of form only. I tried these various forms in the tub. We made changes in the blades of Exhibit 172, this wooden tub down here, to find out the different water actions. I found out something about that. I found that one shape of blade was better than others. That one was the one that is in the aluminum machine now. This Exhibit 172, this wooden tub, I found was better than the others, because there was more of a rolling action. 1717 1718

We tried blades like this, except for being higher. They gave too much rolling action. It throwed all the water out on the floor. Those blades that threw all the water out on the floor were several kinds, whenever we would get up to a certain height and speed we had difficulty. I cannot tell what particular height and speed that did throw the water out on the floor. I don't remember that. These blades that I tried did not differ very much in thickness; practically no difference. There was a difference in length. Other differences were the corners. The outer corners of the tub were sometimes rounded and sometimes square. None of the inner corners were square. 1719

Mr. Lane: The witness has just been talking about Model 80 machine and now you are going back to the wooden tub.

I was talking about the aluminum tub.

In this wooden tub No. 172 (Plaintiff's Exhibit), which I say is a replica of one used many years ago, we used blades of many different shapes and sizes. We made a great many. Some we found were too small and some were too

large. The variation in height was one thing and the length radially. As to the outer corner, in some it was square and others rounded and then some others slanted off. The inner corners of all of them were slanted. I remember no difference in thickness. They were all made of wood. All of these differences I regard as just differences of form. We tried blades of different heights, but otherwise the same. When we tried those
1721 blades we found the same result, if too high we got too much action and if too low not enough action. The water action was more and more pronounced as the height increased. To a certain extent it was that a progressive increase of water action as the height got more and more. When the water became violent enough to go over the top, it was too much. Before we would get to throwing the water out of the tub, where the operation ceased, we used various heights of blades—the blades being otherwise the same. The water action was greater and greater as the
1722 height was increased. The action steadily increased as the height got more and more.

That is true up to the height that threw the water out of the tub. That machine of which this Exhibit 172 is a replica was run at a speed of 52. We tried it at different speeds. That was the best speed. I wouldn't say we tried it at any specific speed; from 52 to 58. I wouldn't say of my own personal knowledge through clocking that we ran it at 58.

The Court: Mr. Edmonds means how do you know now you ran it at 52? What makes you say that?

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The Witness: I don't know what I would say to that. Ran it at 52 revolutions, that is about all I know about it.

The Court: There must be something in your mind that tells you that you ran it at 52 revolutions or oscillations. Now, Mr. Edmonds wants to know what it is that is in your mind that tells you that. Did you make any records?

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The Witness: No, we never kept any records.

The Court: How did you know it was 52 instead of 50 or 48 or 56?

The Witness: I wouldn't swear to anything. I would say 52 to 58.

XQ428. You don't know? That is the real answer, isn't it? A. Absolutely.

We ran it at different speeds. I noticed that the higher the speed, with the same paddles, there was more agitation. The agitation gets greater and greater as the speed goes up. Whether you could get the same agitation by increasing the height of the blade and decreasing the speed is a thing that would have to be tried out. It would make some difference, but I don't know what the result would be. I do know when you decrease the speed the agitation is less and when you increase the blade height the agitation is greater according to the amount of speed you have got. I doubt if you could offset the effect of making the blades higher by reducing the speed with the result that the agitation would remain the same. To get the different speeds

1725

that we used in that machine, we changed the sizes of the pulleys to the motor.

Mr. Snyder had some part in trying out the different sizes of blades. When you look into the tub you can see the rolling agitation of the water. The more clothes you put into the tub the less movement of water up to a certain amount. We could tell what size of blade was better by the way we would get the water ac-
1727 tion to carry the clothes, by looking in the tub and observing what we could see there. Both Mr. Snyder and I did this a good deal.

XQ453. To what extent do these blades in this Exhibit 172, how accurate as to size are they, compared with the ones you decided on as a result of these tests, was the best size to use? A. Which is 172, the wooden tub?

XQ454. Yes. A. The smaller ones we had.

XQ455. Well, why did you make these smaller? A. That was the start. We had to begin somewhere.

1728 XQ456. Will you explain that a little more fully. I thought you said that the blades in 172 were exact reproductions of what you used back in 1920, was it? A. Exactly.

XQ457. Now, did you try various sizes to come to the conclusion that some one size was the best? A. No, we did not come to any conclusion that one size was the best—it depended on the speed.

XQ458. What conclusion did you come to as a result of all those tests that you made? A. The agitation of the gyratator was 50 to 58 strokes.

XQ459. And you concluded that that was the best agitation? A. Speed.

XQ460. That was the speed? A. Yes.

XQ461. And that was the only conclusion you came to? A. We tested and we decided that we had the proper dimensions on the blade.

XQ462. What dimensions did you decide were proper? A. Well, I couldn't say. We didn't decide. I don't know really what the decision was on that. I have nothing to do with the design of it.

XQ463. You have something to do with the 1730
testing of these different sizes of blades? A. Yes.

XQ464. What did you find was the best size of blade? A. I imagine about three-inch blade, about a three and a quarter inch blade high.

XQ465. You personally decided that three and a quarter inches high was the best? A. To my satisfaction. I don't know what they are now.

XQ466. These ones in Exhibit 172 are not as high as that, are they? A. The wood tub?

XQ467. Yes. A. No, no.

XQ468. Why didn't you make them of the size 1731
your test indicated was the best? A. That was the size of the original machine. That was the reproduction of the original.

XQ469. That is the size you started with? A. Yes.

XQ470. And you used various other sizes of blades after having started with this one? A. Yes.

XQ471. Then, this size in Exhibit 172 does not mean anything about what you thought was best? A. No, it just simply is the origination.

XQ472. When was it that you made this Exhibit 172? A. It was in May, 1920.

XQ473. I mean, this particular tub of the form Exhibit 172 here, the wooden tub, which is back there, when did you make it? A. Oh, the original was made in May—

XQ474. No, when did you make this particular one, I am asking you. A. Probably two or three months ago.

XQ475. Two or three months ago? A. Yes.

XQ476. And you made it yourself? A. I did.

1733 XQ477. What did you have to guide you in making it? A. My (indicating head with hand)—my mental observation, picture of the thing.

XQ478. No drawing or anything of the sort? A. No.

XQ479. Is the original tub gone? A. (No answer.)

XQ480. You did not have the original tub? A. No.

XQ481. So you built this two or three months ago from your recollection of what you did fifteen years ago? A. I did.

1734 XQ482. Nothing to aid you but your recollection? A. No.

XQ483. What are the dimensions of the blades in this particular tub, Exhibit 172? A. They are about 7/8ths by 1½ inches high.

XQ484. About that? You don't know exactly? A. No.

XQ485. How long are they? A. About three inches to the tip, to the end.

XQ486. That is, radially they are about three ies? A. Yes, about.

XQ487. Is that your recollection of what the blades were in the tub that you started with in 1920? A. Yes.

1735

XQ488. About three inches long? A. Yes.

XQ489. In inches, what is the diameter of the disc in 172? A. It was cut 16 inches, a half inch turned down, leaving it 15 inches and a half in diameter.

XQ490. What is your recollection about the range of the length of the blades that you used back there in 1920, what was the length of the smallest and what was the length of the largest? A. Oh, I couldn't state any particular length.

1736

XQ491. Only one you can remember is the one you started with? A. Yes.

XQ492. And that was about three inches long? A. More or less.

XQ493. Can't you remember anything about the blades—the size of the blades that came along after this first one, for instance, what were the dimensions of the second or the third one? A. I don't remember.

XQ494. You cannot tell us anything about any one of them? A. No.

XQ495. You just know that you tried different blades, and different heights? A. Yes.

1737

XQ496. But you are pretty sure about the size of the first ones? A. Yes.

XQ497. Now, how sure can you be about the first ones? A. Well, the disc was cut 16 inches and a half an inch turned down.

XQ498. Do you understand that I am asking you—

XQ499. Do you understand that I am asking you about the blades? A. I am coming up to that. The blades were put on radially so that it must be three and a half inches long.

XQ500. I was asking you for your memory of

what they actually were, not your calculation now—what is your memory, have you any better memory than what you have given now? A. No.

XQ501. So on that first set of blades, the only ones that you can remember, the length was three to three and a half inches and the height one and one-half inches? A. Yes.

XQ502. And the thickness you said was what? A. 7/8ths or somewhere along there.

1739 XQ503. Now, what about the corners along the upper edge, were they cut off or not? A. They were just rounded, just the corners were broken.

XQ504. Both corners or all corners were broken? A. All corners were broken.

XQ505. Now, would you mind going down to Exhibit 172 and measure the length of the blades in there? A. If you have a rule I will.

XQ506. Here is a rule. A. (Witness measures.) 1½ inches.

XQ507. What did you find the length there to be? A. 5½.

1740 XQ508. By what? A. 1½ inches.

XQ509. By what? A. 1 inch.

XQ510. 5½ by 1½ by 1? A. Yes, sir.

XQ511. Did you observe the corners? A. Yes, sir.

XQ512. They are not beveled off just the same, are they? A. Yes, they are, the corners are broken.

XQ513. The inner and outer corners are not broken off just the same? A. They are all alike.

XQ514. The inner and outer corners? A. From cutting it straight, the corner is broken off with sandpaper.

XQ515. It appears that your recollection of the length of those blades is way off. A. It does. 1741

XQ516. After 20 years you cannot remember any and all of those items, can you? A. Well,—

The Court: Did you say 20 years, Mr. Edmonds?

XQ517. After 15 years, excuse me, you cannot remember any of those items? A. Some are nearer—I would not say exactly. 1742

I recognize the drawing of patent No. 1,209,893, Exhibit 131 (Def. Tr. Ex. B), as illustrating generally the construction of Exhibit 169. The dolly illustrated in the patent is a little different in construction from the one in Exhibit 169. I do not recall seeing a dolly exactly of the construction illustrated in the drawing of the patent. In Exhibit 169 the dolly is formed on a sleeve provided with grooves that receive splines on a central member, and those splines with the grooves on the central post adapt that dolly for sliding up and down. In that respect the construction in Exhibit 169 is the same as the construction illustrated in the drawing of the patent 1,209,893. The dolly in Exhibit 169 is adapted for use either way, overhead, or otherwise if the dolly is in the upper position with the blades sticking down and there is water in the tub, the dolly would go clear down, if it was heavy enough. If the dolly is not water-soaked, it might float a little and it might not. I saw the machine in operation with the dolly both ways. We used it in different 1743

positions by wedging it in the slots to hold it. I do not know whether before wedging it floated or not. When we tried the dolly at the bottom of the machine of Exhibit 169, with clothes in the machine, it stayed down. I do not know what it would do without clothes in. I have operated the machine myself with the dolly in the upper position. The blades of the dolly engaged the clothes and pulled the clothes
1745 around, and the same thing happened when we put the dolly around the bottom position, with the blades sticking up, the blades dragged the clothes back and forth. The operation of washing would be the same whether the dolly was in the upper position pointing down or in the lower position pointing up. When we made the higher blades than the one and one-half inches, we got a greater agitation of the water. If we had kept the same height of blades, but had increased the speed of the machine we would have got some increased agitation. I don't know
1746 that you would have gotten the same.

With the Exhibit 170, Model 70 machine, the vacuum cup, Exhibit 170-B, the agitator is reciprocat d and the ends of those four blades engage the clothes and move the clothes with them. Instead of putting that agitator on the underside of the tub descending into the water, I did put it down at the bottom of the tub, pointing upwardly, and it did not make very much change in the operation. The clothes would hang on the dolly the same as they did on the top, and rub against the side the same action takes place. I saw the Model 70 with an agitator like 170-B located in the bottom of the tub,

with the blades extending up and driven from below with the power shaft coming up from the bottom of the tub. When I operated the tub with the agitator like 170-B reciprocated by the power, those blades of the agitator engaged the clothes and pushed the clothes back and forth, and that kept up throughout the whole operation. It did not cause very much roll-over. When the clothes were in, it stopped the agitator, that is, the roll-over. It did not 1748
stop it altogether but it broke the rolling motion. I performed perhaps half a dozen washing operations on that machine. I do not know how many minutes it took, I did not get the clothes clean. The operation was unsatisfactory. We changed that agitator to a disc that had flat blades, and that was satisfactory. Those blades did not act as paddles, they circulated the water only. That agitator was made of cast aluminum.

In the model 80 machine, the curving of the disc of the agitator is so that it will conform 1749
with the bottom of the machine. The bottom of the tub is conical. I don't think that has any effect on the movement of the water.

The troubles experienced with machines like that due to leaking through the bottom were quite serious. Some of those machines are still out and are still experiencing trouble. We made them that way for a couple of years and customers reported back trouble quite frequently. It became so serious that we had to do something about it. We already had a solution in the 1914 machine—we extended up the agitator shaft above the water line. With respect to the

1750 machines that were already out, the customers that required the new principle got it, bought it, and others packed them as best they could. We made parts that were shipped to users of those machines to be put on those machines. We made things satisfactory. We put in the new parts in some cases and did something else in others. We relieved the leakage trouble by extending the post up above the water line.

1751 That form of agitator was a disc at the bottom of a high center post and we continued to make that for many years, but we changed them about a year ago. In the change, we took that dish out and reverted it from a dish to a cone shape. I cannot recall any other change at that time.

I went back to work for the Maytag Company on December 1, 1919, and I ran a maintenance outfit, for repairs, about five months, and was doing no work on washing machines from December 1, 1919, to May 1, 1920, when I started

1752 work on washing machines in the experimental department. Snyder was at the head of the experimental department. John Mikulasek was also employed there. He was a draftsman, and is still there, in the experimental department as a draftsman and designer. He is the present head of the experimental department and has been more or less head of the department since Snyder died in 1927. No one is definitely head of the experimental department. Austin, Freshwater, Adams and Smith are in the experimental department. In 1920 Snyder, Mikulasek and myself were all that were in the experimental department.

XQ655. When did Mikulasek go to work there? A. I don't know, he was there the last time that I went back.

XQ656. He was there when you went back in 1919? A. Yes.

XQ657. Was he there when you left early in 1919? A. I was not connected with that department when I left—directly.

XQ658. You cannot tell us anything about Mikulasek prior to December 1st, 1919? A. 1754
No.

XQ659. Where were you working through 1918 and 1919, up to August? A. Well, I worked all around the place there.

XQ660. Not primarily in the experimental department? A. Yes, I was in the experimental department.

XQ661. How much of 1918 and the first eight months of 1919 did you spend in the experimental department? A. Not very much.

XQ662. Not much? A. No.

XQ663. But you spent some time there? A. 1755
Yes.

XQ664. You don't know whether Mikulasek was there or not? A. No, sir.

XQ665. Do you know whether he was there in 1917? A. I don't know that.

XQ666. Who was there, in 1920 and 1921, was there any other draftsman in the experimental department besides Mikulasek? A. No, not that I know of.

XQ667. Then all the drawings made in the experimental department were made by him? A. In the experimental department, yes.

1756 *William James Elliott—For Plaintiff—Rebuttal —Direct.*

Testimony of WILLIAM JAMES ELLIOTT, taken in the Brooklyn Edison record, offered on behalf of Plaintiff.

Direct Examination:

Residence, Newton, Iowa, Age, sixty-eight.

I first went to work for the Parsons Band Cutter and Self-Feeder Company in the fall of
1757 1899 and was with them until 1906, when I was out then for a few years, working at the One Minute Manufacturing Company, and for the G. W. Parsons Trench Machinery Company. I did pattern making at the One Minute Company.

In the fall of 1917 I went back to work for the Maytag Company and stayed there continuously until 1926. I have not been employed by the Maytag Company at all since 1926. I knew Howard Snyder quite well from 1901 up to the time of his death in 1927. He was engi-
1758 neer, designer and inventor of the Maytag Company.

From 1917 to 1926 I was patternmaker. I saw an aluminum tub machine there. It was round, corrugated on the outside, and the lid looked to me like it had a piece of a washboard nailed to it in the pattern, to give it a washboard-like effect. I had nothing to do with the construction of it. I believe the dolly was in the bottom of the tub, I am not sure. I saw it frequently while it was sitting out in the back room. I cannot tell now what the structure of that dolly was.

When I went back in 1917 the Maytag Com-

1759

pany was building a wooden tub, we called it the Maytag electric. It had a peg dolly.

Mr. Snyder talked to me about a different type of washing machine shortly after I went to work there in 1917 or 1918. He did not describe it to me at that time. He described it to me sometime in the winter of 1919 and 1920. I saw him take a pencil and a piece of board on my bench and he made a little sketch.

1760

(Witness makes a drawing as near to the sketch that Mr. Snyder made as he could and marked the parts.)

The Court: Then I should like to know whether the witness states this is a substantial reproduction of what he saw Mr. Snyder draw.

The Witness: As near as I can possibly make it, it is a free-hand drawing.

Q55. About when was that? A. That was in the winter—somewhere in the winter of 1919-1920.

1761

(Drawing offered and received in evidence as Plaintiff's Exhibit 174.)

The Court: What kind of remarks did he make to you?

The Witness: That he desired to build something that would give the water more action in a washing machine.

Mr. Edmonds: I object to that, your Honor.

The Court: I will sustain that objection, although I invited it myself.

Mr. Lane: If your Honor pleases, I wish to offer proof that in the occasion when

Mr. Snyder disclosed this drawing, of which the witness has made a replica, as he remembers it, that Mr. Snyder told this witness exactly how this machine was to work as he intended it, and he made a full disclosure to him at that time of what he was intending to produce, to-wit, a machine which would wash by water action and would force the clothes—force
1763 the water through the clothes while the washing operation was going on, to carry out that operation.

Mr. Lane: For the purpose of the record, I should like to ask this witness to answer if that was substantially what Mr. Snyder told him.

The Witness: It was.

The next machine that Snyder designed that I saw was a wood tub machine. It had a tin, sheet iron disc in the bottom, driven by a shaft
1764 up through the bottom, and on this disc were three vanes, wings, or baffles, and on the side were the power leg taken from the Model 70. George Miller did the work on that machine and I saw that machine in his room. That was sometime in May, 1920. I fix the time because in 1920 we had a 6:30 dinner at Dr. Miller's, it was a Bible Class of the First Presbyterian Church, and that was on April 16, 1920, and Mr. Mikulasek sat by my side and we discussed this idea between us. This idea of the new style of washing machine that Snyder was building.

The Court: Is this gentleman, Mr. Mikulasek, going to be called as a witness?

Mr. Lane: I don't know yet. It depends on what the nature of our proof here is.

(Witness produced his own diary.)

I made the entries in it. I made them at the time. I made the entry of the event—April 16, 1920, at Dr. Miller's 6:30 dinner. It was probably three or four weeks after this that I saw this wood tub machine in the southwest corner of the pattern shop. 1766

Q79. Will you describe what you saw in connection with the operation of this machine? A. It was running when it was empty.

Q80. You never saw it running filled with water? A. No, not—only just a little water in it. Did not have very much water in it.

Q81. How do you— When did you next see it after this occasion three or four weeks after the Bible Class meeting? A. Well, I saw it a great many times.

Q82. Where? A. Well, in that room. 1767

Q83. Do you know what finally became of it? A. I don't.

As to how Plaintiff's Exhibit 172 compares with the machine. I saw—these are the wings. I recall that by seeing it. I did not make these wings, but I made a pair of larger ones. A fellow by the name of Shriner made them. The power leg of the one I saw in 1920 was taken from the Model 70. The height of the blades in the machine I saw were approximately an inch and a half, or inch and three-quarters. The disc is 15 inches, 3-inch hole in the center, leaves about 12 inches, leaves about 5-½ inches. The

higher blades I made myself were about three inches high. I made those somewhere in the latter part of May, or the middle of May, 1920. It wasn't long after the machine was constructed. I yesterday had some blades made to duplicate from my own independent recollection those higher blades. These are correct reproductions as near as I can possibly remember.

1769 (Blades offered and received in evidence as Plaintiff's Exhibit 172-A.)

I suppose when I saw the impeller on the wood model machine it had three blades on it. The impeller was never equipped with these high blades that I know of. Mr. Snyder came to my bench and asked me to make them.

Later I saw a bottom type agitator machine embodying Snyder's work in the Maytag Company plant. It was a dolly type machine. They were made in 1920, 1921 and 1922. One of them had a peg dolly with a wooden base to it with a
1770 casting screwed onto this base, that was in 1921. Mr. Snyder made another dolly. It looked something like a device on the tower, to tell which way the wind blows, it had cups on them, only the cups went both ways.

Q. Will you look around the room and see if you can find anything that looks like that? A. Yes, sir.

Q. Do you see one? A. Yes, sir, this one here, that was the 1922 model.

Cross Examination:

The sketch which Mr. Snyder made and which I have reproduced as Plaintiff's Exhibit 174 was

made on a piece of board which later went into a pattern. I saw the sketch the day Mr. Snyder made it. Since then my attention has not been called to it until I took the stand today. The interior of the tub represented in that sketch was flat. It was a wooden tub. The bottom of the agitator was flat. The agitator was placed probably an inch above the bottom of the tub. That is my conjecture. I did not construct it. The diameter of the dolly was fifteen inches. The in- 1772
terior diameter of the tub was 23 inches. Mr. Snyder did not give me any dimensions in the sketch that I referred to. The sketch Mr. Snyder made was one showing the tub that was of smaller diameter at the top than at the bottom. I saw the machine of Snyder's design illustrated by Plaintiff's Exhibit 172. I first saw the actual exhibit that is in the courtroom in May of 1920.

XQ143. Are you sure—I fear that you do not understand me. We have a tub here in the courtroom. Now, I am not talking about what you say is its twin. A. Yes. 1773

XQ144. I am talking about this one that we are looking at—when did you first see that one? A. This one here?

XQ145. Absolutely. A. I saw it the latter part of last March.

XQ146. Where? A. In Newton, Iowa.

I had nothing to do with the making of it. It was in a crate, and they tore the paper off and showed it to me. I asked where the machine was and I was told that it was in the room and to take a look at it and see whether it was the machine that they made in 1920. Mr. Mikulasek told me that, told me to look. He did not tell me it

was a reproduction of the machine made in 1920. He told me that it was the machine made in 1920, and I went down to look at it.

This machine that I call a twin of this one, I first saw that in May 1920. The second time I visited the room and v it, it was in motion. That was a day or two after I first saw it. It was not in motion the first time I saw it. I did not see any clothes in it. There was a little
1775 water in it. I remember the dimensions because I saw the dolly when it came from the blacksmith shop.

XQ166. Is that the only thing by which you recall its dimensions? A. I thought that was enough.

The dimensions of the dolly are fifteen inches. I did not measure it. I learned that from the man who made it and I remember it to this day. I kept a diary up until 1929—for thirty years. The memo in my diary "Dr. Miller 6:30 dinner —fine day" is the only thing that fixes the date
1776 in my mind: It was sometime after that dinner that I saw the machine. I saw it in May. It was not in June, it was in May that I first saw it. It was about three or four weeks after this dinner that the machine was built.

I made these blades Plaintiff's Exhibit 172-A —recently. I made the original blades in 1920. I delivered the blades I made to Mr. Miller and I made the blades from my own recollection of what I made in 1920. I was asked to duplicate the second set of blades that were made for the machine.

XQ202. And you made those based upon your recollection? A. Yes, sir.

1777

XQ203. Of what you made back in 1920? A. Yes, sir.

XQ204. Has your attention ever been called to those in this 15 years' interval? A. Not that I know of.

XQ205. Did you have any drawing of them? A. No, sir.

XQ206. No sketches? A. No, sir.

XQ207. And your attention having been called to them, the first time a few days ago, you made them and you now say they are the same thing you made in 1920? A. I do say so, emphatically.

1778

Re-direct Examination:

The tub in that device was a wood tub. It was our stock tub. They didn't make the tubs. They bought them from the One Minute Manufacturing Company.

Certain employment cards submitted to counsel for defendant.

1779

The Court: Are you willing to concede that the last two witnesses were employed, as a matter of fact, in The Maytag Company in the time they have stated?

Mr. Edmonds: I would have no ground for questioning that at all.

1780 *Joe Stephen—For Plaintiff—Rebuttal—Direct.*

Testimony of JOE STEPHEN, taken from the Brooklyn Edison Case, offered in behalf of Plaintiff.

Direct Examination:

I live in Newton, Iowa. Age, fifty. I am employed by The Maytag Company and have been for 26 years. I first entered their employ in
1781 August, 1908, August 20th. I went out of their employment August 10, 1918, on account of Navy service. After I was discharged on November 19, 1919, I took a week's vacation and then started to work for The Maytag Company the 1st of December, 1919. My work has been sheet metal work and plating. I have been head of that department since December of 1919. I started to work on December 1, 1919, and I intended to work until the 1st of April, 1920, and then go to farming. I notified The Maytag Company to that effect, but I made an agreement
1782 with them and decided to stay.

Maybe a month or six weeks after April 1, 1920, I did some work for Mr. Miller. There was one piece that I remember. I made a steel disc, about 15 inches in diameter, and it was flanged down on the side half an inch. I did not at that time know what that device was used for, but I did after it was completed. Mr. George Miller asked me to make that device. Mr. Miller took it away from my place himself, I think that was sometime about the middle of May, 1920. Thereafter I saw it in the machine right after the machine was completed, after the disc was put in the machine. I saw it in the experimental

department where Mr. Miller was working on it. He was there at the time. The disc was right inside the tub of the machine. The disc had three vanes on it.

I did not pay much attention to the machine, all I paid attention to was the disc for the simple reason that I wanted to find out if the disc would have to be manufactured at the present time. All my attention was on the disc. I wanted to know whether we were going into production on it at that time. I can make a sketch of that 1784
disc I saw at Mr. Miller's in the experimental room but the machine I did not pay much attention to. It was a Maytag wooden tub. I will make a sketch of the dolly first and then generally what I saw of the machine (drawing). I will mark on that the parts I have made on that device (marking). I have drawn two pictures, one of the tub structure at the top, and the agitator as you look down on the top of it. I saw that machine a few days after the disc was made, I should say two or three days. That day as near as I can fix it was somewhere around the middle 1785
of May, 1920.

Mr. Lane: I offer that in evidence as a plaintiff's exhibit.

(Marked Plaintiff's Exhibit 175 in evidence.)

The upper view is one of the tub with a dolly in it. I never saw this machine operated. I do not know what there was connected with the tub, and where, for operating it. I don't know what the driving mechanism was. I did not pay much attention to it.

Cross Examination:

I had no correspondence with the company about quitting and then going out to farming. It was verbal, and I am depending entirely on my recollection in respect to it. My memory is the only thing by which I can fix the dates I have referred to.

I had one of my men make the dolly of the exhibit. I had no sketch, just verbal directions
1787 as to how to make it which were given me by Mr. Miller. At present it is our practice to have drawings made and blue-prints made, but that was not the practice in 1914 and 1915 as much as it is now. I saw it in the machine once, two or three days after I made it, and have not seen it since. I do not know what has become of it. I have not thought about it since the time I last saw it in the tub. I was asked about it about three weeks ago by Mr. Bradt.

XQ72. Have you practiced making this drawing before you made it on the stand today? No,
1788 sir.

XQ73. Did you ever make a sketch anything like this and show it to anybody before you went on the stand today? A. Sketch like that? I will take that back: I did.

XQ74. When? A. Today.

XQ75. Before you came on the stand? A. Not before I came on the stand, not today, not before I came on the stand.

XQ76. Is this one that I hold in my hand, Plaintiff's Exhibit 175 the first sketch that you ever made in your life of this dolly that you say you made back fifteen years ago? A. I beg your pardon. I did not get that.

(Last question repeated by the reporter.)

A. No.

XQ77. When is the last time before this that you made a drawing or sketch of this dolly that you refer to? A. Last night.

XQ78. Have you ever made any other sketches except the one I hold in my hand, Plaintiff's Exhibit 175, and the one you made last night? A. Not that I remember, not that I know of. 1790

XQ79. Where is the one you made last night? A. I don't—I destroyed it.

XQ80. Had you ever thought of this dolly from the time you last saw it in the machine, as you say, back in 1920, until a few weeks ago? A. Ever thought of it?

XQ81. Yes. A. I had no occasion to think of it.

XQ82. The fact is you did not, isn't it? A. I did not, I didn't have no occasion to think of it.

XQ83. Do you remember the dimensions of this dolly? A. The cut-out is an even 16 or 18 1791 inches, as I remember. It was about 15 inches after it was finished.

XQ85. How is it that you have this memory that the diameter of the dolly was 15 inches? A. My memory, my recollection is that the even number is the law of the average, 16 or 18, and I set it at 16 inches before the dolly was flanged down—16 inches in diameter after the dolly was cut down, and when flanged down it made it 15 inches.

XQ86. And you have had that accurate recollection over all of these years, haven't you? A. Best of my knowledge.

XQ87. At the time Mr. Miller told you to make this dolly did he give you the dimensions? A. Yes, sir.

XQ88. Do you remember now that he told you when the job was finished that it was to be 15 inches in diameter? A. I remember it was an even number.

XQ89. But you don't remember whether it was 16 or 18 inches? A. 16.

XQ90. And then the edge trimmed down half
1793 an inch all around? A. My memory is that it was 15 inches.

XQ91. How long have you been here in Brooklyn or New York before you testified here today? A. From the 8th of April.

XQ92. Where have you been staying during that time? A. At the St. George Hotel.

XQ93. Have you discussed this dolly about which you have told us today anytime except last night with anybody? A. Not—just maybe mentioned it or something like that. It wasn't discussed.

1794 XQ94. Not at all? A. Nothing to speak of.

XQ95. The question of how it was made, that was not discussed? A. Not that I can remember.

XQ96. What it was made of, that was not discussed? A. Not that I can remember.

XQ97. How many vanes upon it was not discussed? A. Not that I can remember.

XQ98. Whether it had a disc or not, that was not discussed? A. I beg your pardon?

XQ99. Whether it had a disc or not, that was not discussed, was it? A. In what way, a disc?

XQ100. Is there a disc in connection with this dolly? A. It is a disc before it is flanged down.

Then it is a dolly. It is a disc before it was flanged. After it was flanged, it was a dolly.

XQ101. Have you ever discussed the dimensions of it since the time you discussed them with Mr. Miller? A. Well, there is a possibility that I have discussed the dimensions.

XQ102. But you are not quite sure about that, are you? A. Went over it in my mind.

XQ103. Did you discuss the dimensions when you made this drawing last night? A. Discuss the dimensions? 1796

XQ104. Yes. A. I cannot recall that. I might have discussed them. I might have worked them over in my mind.

XQ105. You are a little uncertain as to what you discussed last night, aren't you? A. Yes, sir, I am.

XQ106. How can you then be so certain as to this event so many years ago? A. Because that year is one of the most unusual years that I ever put in.

XQ107. Unusual because you thought of a farm? A. I got out of the Navy that Fall. 1797

XQ108. The Fall before? A. I was more independent that year than any other year since then, being that I went out on the farm, intended to go on the farm, was an unusual year.

Re-direct Examination:

I have been out of town about five or six days since I came down here. Last night was the first time Mr. Lane had an opportunity to ask me about the dolly. Mr. Lane asked me some questions about it last night. Mr. Lane asked me something about whether I could make a draw-

ing of the dolly as I recalled it. The sketch handed me is the sketch I made last night.

(Sketch offered and received in evidence as Plaintiff's Exhibit 175-A.)

Nobody helped me to make that sketch in any way, nor made any suggestions to me of any kind.

Re-cross Examination:

1799 RXQ121. Before you made the sketch on the stand today, Plaintiff's Exhibit 175, you had seen the machine in the courtroom, hadn't you? A. No, sir.

RXQ122. You had not seen that at all? A. Not in the courtroom.

RXQ123. Where had you seen it? A. I might have saw it in the hotel.

RXQ124. And on this paper that Mr. Lane has just handed me I find two sets of sketches, one on one side and one on the other.

Mr. Lane: Let me see that. I did not
1800 see it.

RXQ125. Which one did you make?

Mr. Lane: Both of them.

A. I made both of them.

RXQ126. Are they just the same? A. I made one on one side and one on the other.

RXQ127. Are they just the same? A. No, sir, they mean the same, but they are not the same.

RXQ128. What is the difference between the two sketches? A. For the simple reason I am a poor man for making sketches.

RXQ129. What difference do you find between

the sketches? Let us not take a lot of time on it. Just tell us quickly. A. Well, this one on this side is simply got the disc sketched out and on this side here I tried to sketch the tub as well as the dolly.

RXQ130. How high was the dolly set above the bottom of the tub when you saw it? A. About half an inch.

RXQ131. And it shows variously in the two sketches on the respective sides of that paper 1802
and upon the sketch which is the one I hold in my hand, Plaintiff's Exhibit 175. Which one of those three is correct?

The Court: Well, the half inch is the distance he says in the machine. Never mind the sketch.

RXQ132. All right. You remember it was half an inch, do you? A. That is as close as I could remember.

RXQ133. And you saw it just once? A. Just once. 1803

RXQ134. And that was the time 15 years ago? A. Yes, sir.

Testimony of DAVID L. MOOAR, offered in behalf of Plaintiff, from the Brooklyn Edison case.

Direct Examination:

Residence, Newton, Iowa. Age, thirty-five. I started to work for the Maytag Company January 22, 1917, and worked there continuously

from that time until August 18, 1934. I am not connected with the Maytag Company now. I was in the drafting department.

When I went there the Maytag Company were making the wood tub peg dolly type of machine, and while I was there they were making a cabinet type—a cylinder type of washer. I saw an experimental machine there in the summer of 1920 in the experimental room of
1805 the Maytag Company.

I knew Mr. Snyder from the day I started to work there until he died. He died in 1927, I believe.

I had access to the experimental room at all times. Mr. George Miller was working there and Mr. Mikulasek was working there aside from Mr. Snyder. I knew all those men very well.

The machine I saw in the summer of 1920 was an experimental machine made with a wooden tub and with a flat bottom and in that
1806 bottom was a metal disc, driven from the underside of the machine, and on this disc were located, radially—that is from the center—three vanes or blades, if you want to call it that, spaced equally—that would be 120 degrees part. That is the machine I recall seeing. I think the disc was located as close to the bottom of the machine as you could get it without causing any scraping on the wooden bottom of the tub. The disc was round on the edges with a flange over perhaps half an inch downward. I don't recall ever seeing that machine operated. When I first saw the machine Mr. George Miller was in the experimental room with me,

1807

and we had a conversation about the machine at that time. As I recall it, I cast some uncomplimentary reflections upon the appearance of this machine. That is all I recall now about the conversation at that time. The machine was in the west room which is the work shop in the experimental department. I remember Mr. Miller's re-employment by the company. He was re-employed by the company in May of 1920, in the experimental department.

1808

Q37. How do you fix the time of when you saw this particular device that you testified about? A. Well. I have several ways of arriving at it.

The Court: Name one, please.

The Witness: Mr. Miller came up to the experimental department occasionally before going to work there and I remember distinctly seeing him out in the yard and working on truck repairs and also in his work of driving trucks and hauling the castings back and forth, back from our east end foundry.

1809

The Court: How do you fix the year, please?

The Witness: Well, I fix the year by the fact that I recall Mr. Miller's coming back into the experimental department and I asked Mr. Bradt when that was and I checked that against the company records.

Q38. You got company records to refresh your recollection on what you already recall? A. I did in that particular instance.

The Court: So far as your statement of the year is concerned it is based on what you found in the company records, is it not?

Mr. Lane: And his own recollection, your Honor.

The Court: I asked him how he fixed it according to his memory, and I understood him to say that he asked somebody
1811 else and then checked the records.

The Witness: I thought it was about that time. In fact I was pretty positive.

Q39. That is before you looked it up? A. Yes, sir.

Q40. Have you any other way of refreshing your mind as to when these happened in connection with other work you were doing? A. Yes, sir, at that time we were preparing to produce the Model 70 machine which was the aluminum tub machine with the upper type of
1812 dolly and we experienced a great deal of difficulty in producing a tub in production.

Q41. The aluminum tub? A. The aluminum tub and at that time we had an expert metal pattern maker come from Peoria to lick that production job.

The Court: How do you fix that year?

The Witness: Well, I recall that I saw this machine at that time that we were having all of this pattern difficulty.

The Court: How do you fix the year when you were having the pattern difficulty?

1813

The Witness: Well, Mr. Shelley came to the Maytag Company in May of 1920.

The Court: How do you know that?

The Witness: I remember that he came shortly after my first day which was the 15th of May.

The Court: How do you fix the year?

Mr. Lane: The records of the employment of Mr. Shelley are here, your Honor.

1814

The Court: I want to know how he fixes the day, the time.

The Witness: I recall the difficulty we were having with our tub patterns which was very important to us at the time.

The Court: I want to know how you fix the year of that difficulty.

Q42. You know when you went into difficulty on the 1920? A. Yes, sir.

The Court: How do you know?

1815

The Witness: It was in the Fall of 1920.

The Court: How do you know it was 1920, instead of 1921, or some other year?

The Witness: I am fairly positive.

The Court: Why are you positive, what causes such an assurance on the subject?

The Witness: The additional fact that Mr. Shelley came to the Maytag Company and started to work on May 24, 1920.

The Court: How do you know that?

The Witness: That is a matter of company record.

Mr. Lane: I want to come first to this question of law that we were discussing yesterday, and it is a vital proposition, because we are attempting to show a disclosure of a process in December of 1919, as your Honor remembers, December and January of 1919, and that, if established, will dispose of a lot of the testimony that was taken at Peoria, and so forth.

1817 (Discussion of law between Mr. Lane and the Court.)

The Court: Do you wish to recall anybody on this subject this morning?

Mr. Lane: I would like to do this: I have offered this as a foundation for asking questions of some other witnesses, and if they cover the ground there is no use of going over it. I have two or three other witnesses to whom disclosure was made, and I can keep these witnesses here who testified yesterday, Mr. Miller and

1818 Mr. Elliott, on that subject, and I can put that in instead of my offer.

The Court: So as to make it quite clear, what is it you would like to prove by Mr. Miller and Mr. Elliott respecting the precise disclosure of Snyder either in December of 1919 or May of 1920?

Mr. Lane: What I want to prove is this, by Mr. Elliott, first, that prior to the time when he attended that church supper, which he fixes by the conversations by Mr. Mikulasek, that Mr. Snyder had disclosed to him on that little block of wood the structure which he has already

made a drawing of, and that he will testify in substance this, that on that occasion Mr. Snyder said to him that he wanted to do away entirely with the old principles of washing, which consisted of dragging the clothes around and through the water and rubbing them against corrugations, or otherwise scrubbing by mechanical means, and that he said he was going to do this in an entirely new way by putting this agitator, which he disclosed 1820
there, at the bottom of the tub, and oscillating that in such a way as to force the water upwardly through the clothes and washing them while substantially suspended in the water; and as to Mr. Miller that he made substantially the same disclosure to him on the 19th of May, when he told him to do—to make that particular device and also had discussed with him for some time previous to that in connection with getting him back into the experimental department on that date. That is 1821
the gist.

(Discussion between Court and counsel, of cases cited by Mr. Lane.)

(Five minutes recess.)

The Court: I think as a matter of expediency, gentlemen, it is better that the testimony should be in the record and that the Court of Appeals can then dispose of it clearly and that the evidence should be excluded on the offer of proof. What I mean by that is this, that the offer may be a little bit broader and more comprehensive than the actual evidence. My own feeling is relatively unimportant in the

matter. It seems to me that it opens the door to a great many things that ought not to be possible, but I think there is less chance of doing an injustice by permitting the evidence to be offered, even though I do not believe it myself to be competent, and then letting the Circuit Court of Appeals measure the evidence and determine what the effect of it is. I will admit the evidence, with an exception to the defendant.

Mr. Edmonds: I ask your Honor's permission at this time to offer in evidence a copy of this preliminary statement filed by Snyder in the Patent Office, and a copy of the statement filed by his wife, and copies of the declaration of interference and subsequent additional claims.

The Court: Aren't the affidavits in the File Wrapper of this case?

Mr. Edmonds: Not these affidavits that I refer to, your Honor. There are affidavits in that File Wrapper, by Snyder and by his wife, and also by this Mr. Mikulasek who has been referred to here, but the Snyder affidavits are not the particular ones that I am referring to, because that file is the file of the prosecution of the application before the primary examiner. The interference proceeding is a separate thing, and these statements are in that interference proceeding.

The Court: I think fairness should require that you should have every opportunity to meet that hearsay evidence.

1825

Mr. Edmonds: Yes, sir. I cannot meet it so far as I know now in any way except by documents such as these.

Mr. Lane: I cannot acquiesce on hardly a thing he said about this situation. The affidavits that your Honor has considered as sworn to go back to dates prior to April of 1922—the affidavits of Mrs. Snyder and others, prior to that date, showing that we are going to put in this proof. 1826
The plaintiff, to go back and prove what happened in 1901 or 1904—there is no use of it as long as we are ahead of the other man when things are actually done.

The Court: All right, now let us go on with the testimony.

DAVID L. MOOAR, resumed the stand.

1827

Direct Examination continued by Mr. Lane:

I testified yesterday concerning my remembering certain dates by the employment of Mr. Miller in May of 1920.

Q45. The Court asked you also in connection with some other reason for fixing a date—I call your attention to a drawing and I ask you who prepared that drawing. If you will, and when it was prepared. A. This drawing was made by myself.

I dated it. The date on it is May 19, 1920. I prepared the original tracings for that blue-

print. I examined the original this morning and I handed it to Mr. Lane and compared it with this blueprint. It is the same. I made that original drawing, from which the blueprint is made, on May 18, 1920.

Q53. How did that enable you to fix the time in which you saw the machine which you have described—the wooden tub machine with the three blades on the dolly down on the bottom
1829 of the tub? A. I recall working on this in 1920, due to the fact that it came in and interfered with work that I was doing in preparation for putting the model 70 into production which went into production in September of 1920.

I can make a sketch of the structure I described yesterday, that I saw in 1920. I will make both a sectional side view—so you can see the interior of the tub—and also a top view. (complying). I have made the sketch and that represents the machine I saw in the experimental room of the Maytag Company in the summer of
1830 1920.

Mr. Lane: I offer that in evidence as Plaintiff's Exhibit 176.

The Court: How does this differ from some of the exhibits that we now have, Mr. Lane?

Mr. Lane: Substantially the same, but I want an independent recollection of each of these witnesses, none of whom has testified in the presence of the other. Goes down to the question of actual disclosure. I want no question about that.

1831

Cross Examination by Mr. Edmonds:

I saw that machine sometime in the summer of 1920, when it was not in operation, I didn't see it after that.

XQ63. Never saw it? A. (No answer).

XQ64. Don't know what happened to it? A. I don't.

XQ65. Never saw a machine at all like it for fifteen years, did you, during the next fifteen 1832
years? Did you ever see any machine like it before you saw this wooden tub machine here (indicating)? A. Do you mean in principle?

XQ66. Like the one you saw in 1920, like the construction that you have illustrated here. When was the next time you saw a machine of the construction that you have illustrated in this sketch? A. Why, the next time I saw a machine of the, you might say, identical construction, was a replica that was made by the Maytag Company, which I saw at the Maytag Company.

Perhaps a month ago. That is this one that 1833
is here, Exhibit 172. I said I made some uncomplimentary reflections on that machine I saw in 1920. I think I said it was a poor-looking piece of machinery to send out on a test. That is what I referred to as uncomplimentary reflection; nothing more. I made the remark that I did not think it looked very good from an appearance standpoint.

There were no drawings made of the machine to my knowledge. If anybody operated the machine at some time when I didn't see it, they did not, as far as I know, make any records of the operation. I never saw any records of how

it was operated. None were ever made that I know of.

I haven't been doing anything since I left the employment of the Maytag Company in 1934. I presume I am in the pay of the Maytag Company just for this trip to New York. I have been paid nothing at all for the past few months. All that has been paid for me in the last few months, as far as I know, is my hotel and car-
1835 fare and my meals. I arrived here on the 8th of April, direct from Newton. I was given a ticket for my transportation by Maytag or I would not have been able to get here. I was given $25 to apply on my expenses. Prior to that time I hadn't been paid a nickel and they had not bought my clothes and shoes. I have a few dollars of my own that I have been living on the past winter. I was soliciting a job through an employment agency. I solicited the O'Shea Agency. Through them I solicited the Sears, Roebuck Company. I was sent over to see a man
1836 by the name of Snow at the Sears, Roebuck Company, and I was sent over to the Rookery Building in Chicago to see a man by the name of Hart. I did not tell anyone that I had been in the pay of the Maytag Company the past winter, nor that I was being paid a fixed sum per week by the Maytag Company. I understand that just my bare time would be taken care of when I got back from this trial. I imagine on the basis of my previous salary when I was with the Maytag Company. That is what I presumed it to be. I made no agreement of any kind. I simply trusted they would give me something for making the trip here. I left the Maytag

Company employ a year ago for personal reasons. I was dismissed.

When I started working there, Mr. George Miller, Mr. John Mikulasek and Mr. Snyder were in the employ of the experimental department of the Maytag Company. I went there on January 22, 1917, and I found Snyder, Miller and Mikulasek working there. I met Mr. Snyder the first ten minutes I was there. Mr. Mikulasek, pardon me, came a little bit later. I imagine about six or eight months after I came there. Mr. Miller was working out in the outside work later. I couldn't say exactly, but my recollection is that it was in the summer of 1918 that Mikulasek came there. I would say that it was from the summer of 1917 to the fall of 1918. Mr. Mikulasek came there as a laborer to start with, that is why it is difficult for me to place the exact date of his coming there, and I was not in a position to notice him when he first came there. He came into the experimental department as a laborer, and became machine designer. I imagine he is regarded as in charge of the experimental room at the present time. He has been in that position since Mr. Snyder's death. Before that he was designing draftsman working under Mr. Snyder. I believe I saw Mr. Mikulasek last about a month ago, when I went up with Roy to look at that replica of the wooden tub machine. He had no symptoms of illness.

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Mr. Lane: I want to offer in evidence at this time, your Honor, the blueprint identified by the witness No. 1522—I mean the

witness Mooar—dated 5/18/20, as a plaintiff's exhibit.

The Court: What does it purport to show—is there any legend on it?

Mr. Lane: Yes. Not only that but he testified what it was—that it was a part made of a Model 70 machine.

The Court: If he so testified I did not hear him. He made a sketch here and that was received in evidence as Plaintiff's Exhibit 176.

Mr. Lane: I thought the very first question I asked him your Honor—

The Court: I am afraid you did not.

Mr. Lane: May I call him back for a moment on that point?

The Court: Yes.

DAVID L. MOOAR, recalled, testified further as follows:

Direct Examination by Mr. Lane:

That was a drawing of the K540 sprocket wheel for the cabinet, cylinder type washer.

Q151. How did that enable you to fix the date of when you saw that wooden tub machine which is in evidence as Plaintiff's Exhibit 172? A. I recall it was about that time.

The Court: What was about that time?

The Witness: The date that I made the drawing.

1843

The Court: That was about the time you saw this wooden tub machine?

The Witness: That was about the time I saw the wooden tub machine, yes, sir.

The Court: Now the purpose of this is to show what refreshes the witness' memory as a date.

Mr. Lane: The additional thing that fixes his memory, your Honor, yes.

1844

In my last few answers I was referring to the drawing 5022.

(Witness excused.)

Testimony of Roy A. Bradt, offered in behalf of Plaintiff from the Brooklyn-Edison case.

Direct Examination:

1845

Age, forty-two; residence, Newton, Iowa.

My present occupation is Vice-President of the Maytag Company. I have been here during a part of the trial of this case. I first went to work for the Maytag Company, January 3, 1916. I worked in the factory in the machine shop as a machinist until November 11, 1916. During that time I occasionally went back and forth into the experimental department. Mr. Howard Snyder was working in that department at that time. He was head of the department and working on new designs and new machines. George Miller was working with him. That is the only one I recall at that time.

1846 *Roy A. Bradt—For Plaintiff—Rebuttal—Direct.*

During that period in 1916, I saw in the experimental room a round tub, a round cast aluminum corrugated tub washer sitting in the experimental department. It is in the room as Plaintiff's Exhibit 169. I saw the machine setting in the experimental department, close to the door that led between the experimental department and Howard Snyder's office. I saw the dolly in the machine. The dolly I saw was a circular disc of wood with upstanding flanges
1847 on it and the dolly was in the bottom of the tub with flanges extending upwardly. I don't know how the dolly worked. It was not in operation.

(Witness produces record relating to the machine Exhibit 169, secured from the vault in the office of the Maytag Company.)

I brought this down from the files personally and have had custody of those since I have been connected with the company. It contains the
1848 original records of the company as of that date, and has been in possession of the company ever since.

(These blueprints, illustrating the machine Plaintiff's Exhibit 169, are the ones which have been reproduced in photostatic form, of the exhibit presently marked for identification Plaintiff's Exhibit 168.)

(Said Exhibit 168 previously marked for identification, received in evidence as Plaintiff's Exhibit 168.)

I have examined those particular sheets and know that they show the respective parts that are in the machine.

On November 11, 1916, I was transferred to the office. I went into the sales and advertising departments. I stayed there until I left for the Army in 1918. I think that was April 28th, when I went into the Army until August 5, 1919, overseas. I went back to the Maytag Company about September 1, 1919. I went into the sales and advertising departments. I have been connected with them since that time. When I came back I again saw this machine, Exhibit 169, the corrugated tub machine, a number of times. It was 1850 shipped down here at my instance, and it has been in the possession of the Maytag Company since I first saw it in 1916.

I knew Howard Snyder quite well from the early spring of 1916, when I became acquainted with him, until the time of his death in 1927. At that time he was Vice President of The Maytag Company. I recall conversations I had with Mr. Snyder during the latter part of the year 1919.

Mr. Snyder disclosed to me an invention relating to washing machines in the year 1919. 1851 That was made orally. I do not know of any writing that was made in connection with that oral disclosure at that time.

The Court: Any drawings?
The Witness: No, sir.

Q68. Now then, what was it that Mr. Snyder disclosed to you at that time? A. That was my first knowledge of any disclosure of this invention we are talking about.

Q70. Will you please state what Mr. Snyder disclosed to you and state as near as you re-

member the words with which he disclosed it to you at that time. A. A short time before Christmas of 1919, Howard Snyder asked me to come to his office with him to see a new machine that he had just completed. I went to his office with him and we stood and looked at a cast aluminum tub washer with smooth interior and exterior known as Model 70.

As we were standing there I complimented him on the construction of the machine because of
1853 its difficult construction and he says to me, just as soon as I have time I want to develop a machine and put it on the market with an agitator in the bottom of the tub with blades or vanes to throw the currents of water through the clothes and turn the clothes over in the tub and wash them while they are being turned over, and as he said that he held his hand vertically like this, and moved it back and forth in an oscillatory movement to illustrate the action of the blades in the water.

1854 The Court: Tell us all he said at that time.

The Witness: He showed in this other machine where he planned to put this agitator which was in the bottom of the tub with the blades or vanes extending upwardly. Nothing else was said by him in that connection that I remember now.

Referring to the model 70 machine, I have here a record kept by the experimental department of different experimental parts, castings and the date on which those castings were made and I find an entry on September 26, 1919—aluminum tub, marked experimental No. Y4811—for an aluminum tub—Maytag. That is the Model

70, the first cast aluminum tub that was put out. It was square, with rounded corners and a sort of cone-shaped bottom, aluminum rack. The machine I saw was the first one to my knowledge that had ever been built, the first Model 70, and it was in reference to that machine that Mr. Snyder made and explained to me of this invention as I then understood it.

Q82. Now can you make a sketch of that device as he explained it to you in the square tub and as you then understood it? 1856

The Court: Just a minute—

The Court: You are asking this witness, Mr. Lane, to draw a picture of what Snyder said?

Mr. Lane: What Snyder described to him—what his understanding was of Snyder's—what it disclosed to this witness.

Mr. Edmonds: A picture produced in this witness' mind by the words that he heard somebody say.

The Court: Yes. You are trying now to 1857
have this witness give evidence of what was in Snyder's mind.

Mr. Lane: No, what was conveyed to his mind by Snyder as a result of that description.

The Court: You are seeking to have this witness portray what was in Snyder's mind by having him draw a picture of the effect of what Snyder said on his mind.

Mr. Lane: No, your Honor, a picture of what was then disclosed to him by Snyder.

The Court: It strikes me in order to make that of evidentiary value you would have to have the witness say in effect as Snyder made his explanation to me I drew the thing out and I handed it to him and I asked him if that is a correct picture of what he said.

Mr. Lane: No, your Honor, not at all. Suppose you describe an object to me, your Honor, and I go to the blackboard
1859 and I draw that object. What is the difference between having a man mentally describe it and describe it with a pencil?

The Court: Because you are everlastingly confronted with the difference between what the patentee says he discloses and what somebody else is telling you. You go on and ask the witness whatever you choose.

(Q82. repeated by the reporter.)

I have made the sketch. (Witness hands sketch
1860 to counsel.)

Mr. Lane: I offer that sketch in evidence as Plaintiff's Exhibit 182.

(Marked Plaintiff's Exhibit 182 for identification.)

As near as I can remember this conversation with Mr. Snyder, was in the early part of December, 1919.

Mr. Lane: How do you fix that date?

The Court: He said it was shortly before Christmas, a little while ago.

The Court: Did you have a conversation with Mr. Snyder after that time on the same subject?

The Witness: Yes, sir, sometime about the middle of May.

The Court: There was no conversation with him on that subject between December of 1919 and May of 1920?

The Witness: I am afraid not. Shortly after Christmas, or in fact at the Christmas party 1862
at the office, I had a conversation with Mr. Snyder, at which time I said something to which he took violent exception, and there was a period of estrangement until about three and a half months after that period. Then I learned what the estrangement was about, and I went to Howard Snyder, and we had the thing completely talked over, and we became very good friends again. A short time after that time he came into my office and he asked me if I would again come to his experimental department and look at a machine that he had over there. When I 1863
went to his office he took me out into the experimental department and showed me a machine —a washer in the bottom of which was a metal disc with three bladed vanes extending upwardly. It was a wooden tub taken from one of our standard model electric washers. I examined it at that time. At the time that we went out there it was not running, but while we were standing talking he started the motor and started this disc in the bottom of the tub. The operation of this agitator in the bottom of the tub caused currents of water to flow out from these blades or vanes to the edge of the tub, upward along

the sides of the tub toward the center and down. The agitator oscillated back and forth. When he first started the machine there was not any clothes in it. As we stood there talking he picked up several pieces of clothes that were laying there close by, and threw them in the tub. I observed the action of the water on the clothes at that time. The clothes followed substantially the currents of water down in the center along the bottom of the tub, up the sides,
1865 that is above the blades or the vanes to the edge of the tub, up the outside and toward the center. The water had a very turbulent appearance.

Q101. Now, I asked you to make a sketch of that machine—a rough sketch of it—and did you do so for me? A. Yes.

Q102. I hand you that sketch and I ask you whether that is one that you drew at my request to show that machine as you saw it at that time? A. Yes, sir, it is.

(Offered and received in evidence as
1866 Plaintiff's Exhibit 183.)

I very distinctly remember that time because when Mr. Snyder and I turned from the machine and went back to his office, he looked up to me and said, "I understand you are going to join our ranks," and I said, "What?"—Then he repeated the statement and I said, "I am afraid I do not quite understand what you mean." He then laughed and he said, "Well, I saw in the Newton paper last night the announcement of Jim Davidson's daughter that you were to be married on June 16th." That conversation took place at that time. I have here

a clipping of the newspaper and a photostatic copy of the page. It is dated May 20, 1920.

(Admitted that the announcement of the engagement of the witness was published in the Newton Daily News on Thursday afternoon, May 20, 1920.)

There were three blades on the impeller. As near as I remember they were about an inch and a half high. I had a replica of that machine 1868
made. It is in the courtroom here as Plaintiff's Exhibit 172. I asked George Miller to make that device for the reproduction of the machine that he made in May of 1920. I did not give him any instructions of any kind as to how that should be made. I saw a machine of which Exhibit 172 was a replica, in the experimental department, after May of 1920, about August or September of the same year. I don't know what happened to it afterwards.

At that time, between May and the summer of 1920, Mr. Snyder was getting the Model 70 1869
ready to put into production at the instance of the Board of Directors. It was a square tub, cast aluminum washer with cast legs and with a frame or bracket beneath the legs underneath to hold the matter for operating the machine. One very definite difficulty experienced in connection with getting it ready for production was that of casting an aluminum tub of that size and shape. Mr. Maytag had gone to a number of prominent foundry men in the United States and all of them told him that it could not be made in that size and shape, so after a great deal of work with our own engineers we succeeded in

finally developing equipment which made that tub possible. A great deal of Mr. Snyder's time was taken up in that work following his having Mr. Miller make this wooden tub machine that I saw. The Plaintiff's Exhibit 170C, is a photograph of the machine I am talking about. I have records here showing when that machine was first put into production. I have here a number of daily stock reports of the Maytag Company, each day's production beginning from
1871 August 20, 1920, until December 31, 1920, and on the first date on which this Model 70 aluminum machine appears in production is September 21, 1920, that is commercial production.

About 2100 were sold. I get those figures from our actual records. That is from September 21, 1920, until October 5, 1921. It was not a particularly good washer as far as length of time in which it washed, and it still did damage to the clothes on account of the blades or the fins of the dolly engaging the clothes and pulling them around. The effect of the lack of corrugations
1872 as compared with the dolly type was that it took a great deal longer to wash.

Following that experience with the sale of this peg machine like that in Exhibit 170C, Mr. Snyder developed a different type of dolly as an attempted improvement in the machine for actual production. That development was carried on along in September and was put in production in October. That is the vacuum cup dolly, 170-D. I have here a factory production schedule showing that this change was made on October 5, 1921. This record shows that the flange model was discontinued at that date and the cup dolly was begun on that date. Referring to Plaintiff's

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Exhibit 170-D, that record refers to that type of machine which was put into production on October 4, 1921. That stayed on the market commercially until April, 1922, when it was discontinued, and neither of these types of machines as shown on Plaintiff's Exhibits 170-D and 170-C were ever made by the Maytag Company after that date.

Mr. Snyder's work during the period from the latter part of 1920 and early part of 1921, prior to putting into production this last vacuum cup type machine was development work having to do with these two machines largely. During that period Mr. Snyder developed a cast aluminum tub washer with an agitator in the bottom of the tub. I first saw that along about the middle of October, 1921. I knew about his carrying on that work previous to that time. It was carried on in his experimental department, and in the home of a washerwoman in Newton.

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Q150. How long had it been carried on by him previous to that? A. Ever since—

1875

The Court: Within your observation.

Q151. Within your observation.

The Court: No hearsay in this, if you please. When did you first see it, that is, the experimental work that Snyder was doing?

The Witness: I am not sure that I am supposed to talk about this particular machine I saw.

The Court: That is what we are talking about. Now, then—aluminum tub with the underwater agitator.

The Witness: First time I saw it was in the middle part of October, 1921.

The Court: When did you first see Snyder doing any experimental work on that?

The Witness: That was the first time.

Q152. You mean experimental work?

The Court: Now, we have the date fixed as to the experimental work. Please go

1877 on.

The Witness: Of that particular machine.

I saw an agitator that Mr. Snyder made in August, 1921, in his development. It was a metal agitator with a metal disc and with four blades extending upwardly from the disc. The machine that I saw in October, 1921, was cast aluminum tub with Model 70 tub, and in the bottom of that tub was a round disc or dish-shaped agitator with four blades extending upwardly, and

1878 with the small dome in the center of the disc. That machine is here in the courtroom as Plaintiff's Exhibit 173. Since the time it was used for experiments it has been kept in the experimental department and sometime last year it was shipped to Parkinson & Lane of Chicago for use in this case. I have seen it from time to time and know about its being shipped here and being kept here since. I saw that machine in operation at Mrs. Ellingsworth's. I fix the date when I saw it, because the fore part of October, 1921, I was taken very sick with ptomaine poisoning, and I came back to the office for the first time on my father's birthday, which

was October 19th, and on that day Howard Snyder told me about the machine having been sent to Mrs. Ellingsworth's house, and for me to go and look at it the first opportunity I had. I went that same day and saw it in operation, washing clothes. The machine was full of water, dirty water, which she drained out and replaced with clean water. After it was replaced with clean water, I asked permission to start the agitator, to watch the action of the water, which she granted me. The agitator oscillated back and 1880
forth on the bottom of the tub and caused the water to be thrown out and boil up along the sides of the machine, sides of the tub, and I watched her put clothes in and watched those clothes being taken down in the center of the tub. I watched them come up on the outside—that is, near the outside edge of the tub, and disappear again in the center of the tub, and there was a very free roll-over of the clothes through the water. I watched her run two batches of clothes through that washer and the clothes went in dirty and came out reasonably clean. It 1881
took about seven or eight minutes. As I remember the clothes were the regular run of average household laundry, and I don't remember any particularly dirty pieces. I have here an office communication signed Howard Snyder and dated October 18, 1921, addressed to F. L. Maytag, Chairman of the Board, which reads as follows:

> "I want you to know that as soon as you return you can see the new washer in operation at Mrs. Ellingsworth's. As I mentioned to you I have put the agitator in the bottom of a Model 70 aluminum tub

1882

and it gives much better water action than in the flat bottom wood tub. I also added another blade."

That document refers to the agitator type of washer—to the Model 70 tub with a dish-shaped agitator in the bottom such as Exhibit 173. That is the particular machine it refers to, Plaintiff's Exhibit 173. I know that Senator Maytag went out to see that machine following the receipt of

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that letter. I went with him. That was the latter part of October, about a week after I had seen it. He and I witnessed demonstrations of it. I saw when Senator Maytag was present, practically the same operation that I saw on the previous visit. Three or four loads of clothes were washed on that occasion and Mr. W. I. Sparks, Secretary of The Maytag Company, was also present on that occasion. Mr. Snyder was also present. I don't recall any discussion at that particular time relative to whether the machine should then be put into production. Fol-

1884

lowing the use of that particular machine that I saw there at Mrs. Ellingsworth's, a short time before Christmas the Board of Directors authorized Mr. Snyder to build, as soon as possible, four complete machines of that particular model and type.

There are drawings showing when the first patterns were made for the starting of construction of those machines. I do not have them in the court room now. That was December 23, 1921. Following that, these four machines were completed. Plaintiff's Exhibit 10 (Tr. Ex. 9) is one of those four machines. That is the first machine that was completed—it was taken to the

1885

Pacific Coast by Mr. Maytag in March of 1922, and it was sold to a dealer and a number of years afterwards it was picked up and brought back and presented to Mr. Maytag as a souvenir of the first machine of that model that was ever built. It was shipped out of the factory on February 5, 1922. That machine got into commercial production following the putting out of those four machines in the early part of April, 1922.

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(Photostat of inter-factory communication dated October 16, 1921, marked Plaintiff's Exhibit 184.)

The sales in 1922 were 17,426 units.
In 1923 - 56,340 units.
In 1924 - 98,221 units.

181,958 units.

The above sales refer to Plaintiff's Exhibit 10 (Tr. Ex. 9) type only. A total of 354,945.

1887

Q205. Mr. Bradt, in connection with the question the Court asked, I am afraid there may be some confusion, the Court asked about the Model 10, and I know as a matter of fact that this one with the high center drive, which is Plaintiff's Exhibit 11, came out sometime in the latter part of 1924 or 1925. Do the figures apply to both types? A. Yes, sir the model is the same.

We first put out the device like Plaintiff's Exhibit 11 (Tr. Ex. 10) with the high center drive, in October, 1924. I have a book here which shows the serial number of each machine put out and the date, and it shows that the first Model 80's with the high center were put out on October

31, 1924. We were selling some of the low center drives after that as well as some of the high. They started in production in October, 1924, and continued to increase until after the first of the year. During 1925 the bulk of them were high center drive type.

I knew Mr. George Miller and Mr. Mooar and Mr. Stephen and I am responsible for having them come down here. The reason they came down early is that I understood they were to
1889 testify on the 10th or 11th of April, and they have been around different parts of the country seeing the East since.

Mr. Miller did the work in connection with the building of this wood tub machine.

Very little advertising work was done in 1922, except a number of ads that were run in trade papers and electrical magazines. There was practically no newspaper advertising done in 1922, 1923, and none in 1924 until September of 1924, when we began to do some at that time. I was the advertising manager. We increased the
1890 advertising in 1925, because of the inroads that competition was making on our business with machines of the same type and design that we were putting out, and our expenditures for advertising were much heavier from that time on. All of the twelve million expenditure that Mr. Bones referred to was done after the year 1924, except less than approximately $600,000.

I was in frequent contact with Mr. Snyder both individually and Board meetings and I knew from those meetings that he was working on the development of this washer.

Q239. What particular work was he directed to do by the Board of Directors in connection

1891

with putting out machines that were put out in 1920, which you have spoken of as the Model 70? A. In Board meetings I observed a difference of opinion and contention between Snyder and the Board of Directors in that he wanted to go ahead to put this particular type of washer on the market and the Board of Directors insisted that he stick to the square tub cast aluminum type washer, with the dolly on the lid. I mean the wood tub machine with the disc on the bottom.

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I remember distinctly in the early part of 1921, at a Board of Directors' meeting, Mr. Snyder confronted Mr. Maytag with the statement that he was ready to go on the market with the underwater type of agitator and Mr. Maytag refused to let him do so, claiming that he did not want a repetition of a previous product that had been put out before it was sufficiently tested, and Mr. Snyder very strongly called Maytag's attention to the fact that the Model 70 was not washing as it should, it was not particularly efficient and urged again that he be

1893

allowed to go on the market and get something ready to produce on the underwater type of agitator and Mr. Maytag steadfastly refused to let him do that until he had carried his experiments further than he had at that time.

I recall an occasion when an agreement was reached between Mr. Snyder and Mr. Maytag as to his being permitted to go into final development work leading to production. That was in the latter part of December, 1921, and immediately after an observation of the washer that was on test at Mrs. Ellingsworth's house. Mr. Maytag was very much pleased with the re-

sults of the test and he authorized, in fact he instructed Mr. Snyder to go ahead and prepare for the production of the Model 80. Mr. Snyder immediately started work for the preparation for that production.

I have the drawings of part of the work that he did shortly after that time, here—of the impeller. I have here the original pencil drawings of the gyratator dated December 21, 1921. I have here a blueprint reproduction of the drawing.

1895 The drawing is made and signed by John Mikulasek. Here is a pattern casting order dated December 23, 1921, for one casting Y1447. That is the number on the agitator. Those were taken from the permanent records of the company and brought here for the purpose of this case. They have been in my possession since I secured them from those files.

Blueprint offered and received in evidence as Plaintiff's Exhibit 188. The first commercial machine with the impeller as shown in the blueprint just referred to, as distinguished from

1896 the one I saw at Mrs. Ellingsworth's, was completed on February 25, 1922. I have here daily stock reports of The Maytag Company from January 1, 1922, until April 1, 1922, and on February 25th the report shows registration of the first Model 80 made. The next one is on February 27th, February 28th, next one on March 9th. These records were made each day as the work progressed. The machine of which I gave the first record is here in the room. It is Plaintiff's Exhibit #10 (Tr, Ex. 9), and is called the Model 80. That is the first time we made a Model 80 machine.

The Model 70 machines referred to on there,

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are the ones with the dolly in the top of the tub. They were of the vacuum cup and peg type.

Mr. Maytag took that Plaintiff's Exhibit 10 (Tr. Ex. 9) to the Pacific Coast.

I prepared advertising material for The Maytag Company during the early stages of the introduction of the Maytag Gyrafoam machine like Plaintiff's Exhibit 10 (Tr. Ex. 9). It was prepared as a result of a number of actual tests, and observations of the way the washer worked, and our desire to explain to the public as clearly as we could how it should be operated. I wrote Plaintiff's Exhibit 94 (Tr. Ex. 13). I watched a number of tests and demonstrations before I prepared that circular. I saw a better water action when you put a few clothes in the tub than when you put a heavy—

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> The Court: What did you see about the water action? Did you use a glass tub?
>
> The Witness: No, sir.
>
> The Court: So that the water action was not visible except as you could observe it by a surface view?
>
> The Witness: By a surface view, and the action of the clothes.

1899

Others witnessed those tests to determine the amount of clothes to be used in the tub in my presence. Snyder was there on those occasions, and he had something to do with the instructions to be given as to the operation of the machine. He had made a great many tests. I was present at a number of them. Most of the work was done in the experimental department and only a limited number of people could get access

to the department. Only those in the confidence of the company.

I should judge Mrs. Ellingsworth is between 73 and 74 years old. I called on her with the purpose of having her testify here, but she is not at all well physically or mentally and was not at all able to make such a trip. Her memory was very unreliable because of her inability to state any definite information as to dates.

The principal amount of expense included in
1901 our advertising in connection with the early introduction of the Model 80 machine was chiefly trade paper expense, calling it to the attention of the dealers throughout the United States. We had a great deal of difficulty with the sale of the machine during the early periods of introduction for the reason that it was altogether a new type of washer, and no one of the dealers were acquainted with its operation, and they were skeptical as to what it would do to the clothes and especially so when it was ridiculed and belittled a great deal by our competition. To over-
1902 come that it was necessary to sell the machine by demonstration rather than by advertising. It was sold to the dealer by demonstration and the dealer was instructed, prompted and urged to sell it to the consumer by demonstration. When The Maytag Company was introducing the Model 80, competitors were doing a great deal of advertising of their own types of machines which included the dolly, the cylinder type, the vacuum cup type, and as Maytag became more and more accepted in the field, in the latter part of 1922 and '23, competitors continued to increase—or increased their advertising in the field in an attempt to meet the in-

roads that Maytag was making and the number of sales they were developing.

(Circular which has been shown to the witness and known as the Universal Landers, Frary & Clark machine, marked Plaintiff's Exhibit 189, for identification.)

No cross examination.

1904

Testimony of CHARLES V. THORNTON, from the Brooklyn-Edison case offered in behalf of Plaintiff.

Direct Examination:

Residence, Detroit, Michigan. Age, forty-one. I am associated with Ford Motors and have been connected with them since last August.

I worked for the Maytag Company from March, 1919, to October, 1920. After I left the 1905
company in October, 1920, I went to Peoria, Illinois. I have not been in anywise connected with the Maytag Company since October of 1920, and have not been back to Newton, Iowa, since leaving in October, 1920.

During the period from March 26, 1919, to October, 1920, I became acquainted with Howard Snyder. He had charge of the experimental department. John Mikulasek and George Miller and Mr. Austin were working with him in that department.

I was foreman of the pattern shop. The pattern shop and the experimental room were in

the same building. I recall Mr. Miller coming back and going to work for Mr. Snyder. That was around May of 1919. I know he was there in 1919, but as to working for the experimental department—

Q23. But what? A. I correct my statement there.

Q24. You think he was not working for the experimental department? A. I think he was
1907 working outside.

As to Mr. Snyder's work in connection with the washing machines from March 26, 1919, to October, 1920, he had charge of all the experimental work, and he was developing the new aluminum tub. That was started in 1919.

Q28. Is there any one of those machines here in the room? Can you tell, if you look around? A. (No answer.)

To describe the machine he was working on in 1919, I can explain the extent of my pattern work, that is all. We made patterns for a new
1908 aluminum tub, and that we discovered we could not cast it in one piece, and Mr. Snyder recommended taking the top and riveting it to the tub.

I would say that it was in the late spring or the early part of the summer in 1920 that Mr. Snyder was designing or experimenting with an under-water agitator machine.

George Miller was working on a type of agitator to be driven from the bottom of the machine, and my attention had been called to it several times, through being in the experimental department, as to the new development, and I had occasion to be in the experimental depart-

1909

ment each day. Therefore, I passed through and saw it, and I paid particular attention to the way it operated in regards to throwing the water. It was one of the old wood type machines and the agitator was constructed from a sheet of metal, a disc with wooden vanes and they had taken the old power leg to use to drive it. The power leg was from one of the old machines. I don't recall the number of the model. I had very little to do with the construction under- 1910
neath the tub, but Mr. Miller, did quite a little bit of that work in the pattern shop and he used our machinery. He used the milling machine and also he used our lathe. He made parts of the drive which was located in the bottom of the machine. This driving mechanism underneath was supposed to drive the agitator. It was at the bottom of the machine. I cannot recall exactly how it was mounted. I would say that the disc was suspended to the drive shaft, whether it was a square shaft or a round shaft with a pin in it, I don't know. The disc was placed 1911
just far enough, relative to the bottom of the tub, to give clearance between the disc and the bottom of the tub. There were three wooden blades, and to the best of my recollection they were about an inch and a half to two inches high.

Q54. What if any operations of this machine did you see during the time—during this Spring of 1920, with this machine you have described? A. What operations did I see?

Q55. Yes. A. Well, I seen it run with a few clothes in it and I saw it running without any clothes.

Mr. Snyder called my attention particularly

to the water action, more than anything else, that is what I was interested in. I noticed a difference in the action of the agitator. It was more forceful than that of the old wooden dolly. I saw how it distributed the water—the action of the water is what I noticed more than anything else. It would throw the water with force up to the side of the tub and it would return and you had better agitation than you did with
1913 the dolly working from the top. I saw the clothes thrown around in the tub.

The Court: I will tell the witness to state nothing but what you saw. Did you observe the movement of the clothes?

The Witness: I did.

The Court: Can you describe it?

The Witness: Not further than I have, but I saw the water throwing the clothes around in the tub.

The Court: Did you follow the course?

1914 The Witness: No, I did not, I did not stay long enough to observe those details, my work is pattern work.

Mr. Lane: I offer to prove from the card taken from the files of the Maytag Company that this witness, Thornton, began his employment on the 26th day of March, 1919, and was continuously employed there until October 15th, 1920, and was in Department 3.

No cross examination.

Frederick F. Mason—For Plaintiff—Rebuttal—Direct. 1915

Testimony of FREDERICK F. MASON, offered in behalf of Plaintiff, taken from the Brooklyn Edison case.

Direct Examination:

I live in Evanston, Illinois, and am employed as a patent attorney by Parkinson & Lane of 3100 Bankers Building, Chicago. That is the firm with which Mr. Lane is connected. I first entered the employment of Parkinson & Lane on April 25, 1917. 1916

On October 17, 1917, I was instructed to go to the Coliseum in Chicago and take a draftsman with me to inspect a Maytag cylinder machine that was at the Coliseum for the purpose of studying it to prepare patent applications and let the draftsman get sketches and drawings. The machine was not there. I went back the next day, which was October 18th, and the machine had arrived in meantime and we studied it and the draftsman made sketches. I have verified those dates from my own personal diary, kept continuously as the work progressed. I have the patent which was taken out on that cylinder machine. 1917

(Witness produces patent No. 1,417,306 of May 23, 1922.)

(Said patent offered and received in evidence as Plaintiff's Exhibit 209.)

I knew Mr. Howard F. Snyder. He was the designing engineer of The Maytag Company

and later on he was Vice-President. I first met him on October 30, 1917. That was in my room in the office of Parkinson & Lane, where I worked. Mr. Snyder explained to me the structure and operation of the machine I had seen at the Coliseum, the inventor of which was Mr. Dremel. I asked Mr. Snyder if he liked a cylinder machine. He said "No, I don't like a cylinder machine, but I am working on a machine
1919 that I like much better, and that will beat them all." He said it is not a cylinder machine "but it is a machine that has an oscillating impeller in the bottom of the tub," and that "When the impeller is oscillated, it sets up currents in the water in the tub and washes the clothes by water action alone." That was the first time I had ever met Mr. Snyder.

On January 21, 1921, I was called into the room of Mr. Lane, of our firm, and Mr. Snyder was there and had with him photographs of a new machine. I have those photographs here of
1920 the machine on which he wished patent applications prepared. Mr. Lane called me in and told me that he wanted me to hear the explanation and description of this machine because I would be responsible for preparing the patent application. So I sat in during that conference with Mr. Snyder. At that time we also had a discussion concerning an amendment in another case, and I have the file of that case here. We were also considering the question of claims and protection in another Snyder application that was pending at that time, the serial number of which was 137,528, which resulted in a

patent, Number 1,391,214, dated September 20, 1921. That is the tub that Mr. Snyder and The Maytag Company called the Maytag aluminum washer. It had rather deep-seated corrugations in it. Following the discussion, an amendment was prepared and filed in this application right soon after that conference with Mr. Snyder on that date, January 21, 1921. The date of the amendment is February 26, 1921.

I verified that conference date of January 21, 1921, from my own diary, and have the entry here. Under date of January 21, 1921, is the following entry, made in my own handwriting at the time of that date and it reads—"Maytag Company—interviewed H. F. Snyder —parenthesis—in Mr. Lane's room—end of parenthesis—re various patent matters and new patent application 'Siamese Twins.'" Mr. Lane asked Mr. Snyder—they were looking at these photographs that I hold in my hand now, these same ones, Mr. Lane asked Mr. Snyder whether this machine which Mr. Snyder had jokingly called the Siamese Twins—and he called it that name because it was two machines fastened together and they both operated off the driving power of one motor, and Mr. Snyder—Mr. Lane asked Mr. Snyder is this machine satisfactory and Mr. Snyder pointed to the dollies on the underside of the lid and he said, "The Maytag Company are not willing to depart at this time from their policy of putting out a type of machine like that that has blades that grab the clothes and drag them through the water. I have been trying to get them to let me put on

the market a real machine that will depart in principle from that washing action but they will not do it for fear it would be detrimental—changing their entire output—the product," so Mr. Lane said to Mr. Snyder, "What is that new machine," and Mr. Snyder said, "It is a machine in which I am going to use a plain aluminum tub, uncorrugated, and I am going to mount in the bottom of the tub an impeller
1925 that will oscillate and drive the water laterally out toward the side of the tub and then up the side of the tub and back into the center and down again to the impeller" and he used his finger in telling us that to show the circulation of the water.

Then, knowing I had to prepare or rather be responsible for the preparation of the patent application on that machine when it did come in, and Mr. Snyder assured us that it would come in right soon, I asked him some questions myself because I wanted to know something
1926 about it in case I was up against the preparation of the patent application.

I said, "Mr. Snyder, you said you were going to use a plain aluminum tub. What kind of tub were you going to use, what is going to be its shape and general construction?"

He picked up these two photographs and he said, "That is the kind of tub I am going to use, except I am going to make the flat space in the bottom a little larger to accommodate an impelier, and the impeller will oscillate and drive the water, as I have just told you."

I then said to Mr. Snyder, still wanting to

know more about the construction of that machine, I said, "How are you going to drive the impeller, from the top or bottom?"

Then Mr. Snyder turned to the drawing that was lying on the desk, Mr. Lane's desk, right in front of us, and he says, "This is the way I am going to drive it, like shown in that patent application," and he pointed to the drawing in this application which I referred to a moment ago as Serial No. 137,528.

I said then, "By that you mean you are going to drive it from the bottom?"

He said, "Yes, from underneath the tub, with a rack and pinion, driven from a crank operated through a worm gear from the motor."

Going through my diary, I found that I had an interview with Mr. Snyder on April 1, 1921. I have my diary here with that entry in it. Mr. Snyder again discussed with me this washing machine with the oscillating impeller in the bottom, and I asked him more questions about it because the onus would be on me of getting the material for the patent application. Mr. Lane was fine on high spots, but he put it up to me to get the detailed construction.

The next time, following April 1, 1921, that I had an interview with Mr. Snyder regarding agitator type machines was January 13, 1922. Under date of January 13, 1922, my diary reads: "Maytag Company—To services with Mr. Lane in re interviews with Howard F. Snyder and E. H. Maytag." Mr. Howard F. Snyder was very enthusiastic that morning and he said to Mr. Lane and myself, "I've got it."

1930 *Frederick F. Mason—For Plaintiff—Rebuttal—Direct.*

Mr. Lane said, "Got what?" He says, "Got that machine I have been telling you fellows about for a long time."

And then in answer to Mr. Lane's question, what machine it was, he stated that, "I mean the machine that has the impeller in the bottom of the tub and the impeller oscillates and drives the water out to the sides of the tub, then up and down." He said, "That machine has been
1931 built and I have finally been able to convince the Maytags that that machine is safe to put on the market." Instructions were given Mr. Lane and myself relative to the prosecution of this application of Mr. Snyder's at that time.

I had at least one interview with Mr. Snyder between January 13, 1922, and June 14, 1922. That was on April 26, 1922. It took place in the office of Parkinson & Lane. Mr. Lane and myself were both present. We had the Gyrafoam machine right there in the office, on which the application was filed June 14, 1922, and Mr.
1932 Snyder demonstrated that machine to us very thoroughly.

I began the work on the patent application on May 8, 1922. The drawings had been made by the draftsman previous to that.

The Court: There is no interview between yourself and Snyder after April 26, 1922, and before the patent application was filed, is that so?

The Witness: Yes, sir, that is correct.

Mr. Lane: Yes; I just want one thing. I want to have a disclosure of the actual operation of the machine by Mr. Snyder.

The Court: He had stated that the machine was operated on April 26th, and told you—

Mr. Lane: I think so. That is plenty. I would like to offer in evidence the pictures referred to by the witness.

The Court: Those are only important as helping him to fix a date, aren't they?

Mr. Lane: No, showing the explanation of the type of machine which was used 1934 when Mr. Snyder was making the explanation that he used these drawings, showing that he was going to use that shape of tub, put it in the bottom.

The Court: All right.

Mr. Lane: I will ask one more question.

I refer to the application that showed this corrugated tub machine. The same picture is shown in the patent that I referred to, that I read from the file. 1935

(Photographs offered and received in evidence as Plaintiff's Exhibit 210.)

Cross Examination:

I have had quite a bit to do with the prosecution of the application for the patent that is here in suit.

I recognize the document, Exhibit 106, having a copy of the petition and a copy of the specifications. The specification includes some 29 claims.

1936 *Frederick F. Mason—For Plaintiff—Rebuttal—Cross.*

I know that the application for the Snyder patent in suit was involved in an interference with an application filed by Unruh or a patent of Unruh's.

Mr. Edmonds: I offer in evidence copies of these four documents from the Interference between Unruh and Snyder, these being the Declaration of Interfer-
1937 ence, stating the issue of the Interference before the patent claims, the Preliminary Statement signed by—executed by Snyder before a notary public on October 23, 1926—this Declaration of Interference, I should have said, was dated September 8, 1926—and subsequent paper dated March 17, 1928, called a Redeclaration of the Interference, whereby three claims were added to the issue of Interference and a further Preliminary Statement executed on April 7, 1928, by Letty Snyder, who
1938 stated that she was the executrix of the Estate of Howard F. Snyder, Deceased.

(Marked Defendant's Exhibit 147 in evidence.)

Mr. Lane: I offer in evidence the opinion of the Examiner of Interference in the case of Unruh vs. Snyder of which the opinion of the Court of Appeals is already in, dated October 12, 1928; a decision of the Board of Appeals of the Patent Office in the same case, dated December 31, 1929; a decision on a petition for rehearing dated January 31, 1930, and certified copy of a protest filed

with the Patent Office after the Interference had been decided, dated June 19, 1931.

(Marked Plaintiff's Exhibit 212 in evidence.)

Testimony of JOHN E. HERBST, offered in behalf of Plaintiff, taken from Brooklyn Edison 1940 case.

I live at Newton, Iowa. I work with The Maytag Company. I am machine shop superintendent. I will be fifty years old.

I made the metal patterns for the aluminum corrugated tub machine, Plaintiff's Exhibit 169, and several of the parts. That has the agitator in the bottom of the tub.

Howard Snyder was responsible for the designing of that machine. I built the tub in 1914. Immediately after finishing the casting for that 1941 machine I had a talk with Mr. Snyder.

The first time I saw the machine made by Mr. Miller was in the last week of May of 1920. It was a regular standard wooden tub machine of that period and it had a steel disc in the bottom, about 15½ inches in diameter, and it was turned down on the outside diameter and fastened to an iron flange underneath in the center and it had three wood blades on it—it had been drilled for six blades—and when I seen it it only had three blades on it and they were about an inch and a half high. I made the ratchet bars and oscillating mechanism.

That was in 1920. I had charge of the machine shop and grinding and polishing. Part of my department was located right next to Mr. Snyder's department and we did some assembling and had some men downstairs underneath his department. My relations with Mr. Snyder were very close. I have had occasion to make experimental parts for machines for him ever since I have been there.

1943 There are three things that would recall the date of May, 1920, to my mind, as the time when I did this work on this machine. We were trying to get into production on the Model 70 aluminum tub and we were having considerable trouble and we also were having trouble on the cylinders and Mr. Snyder came over to me and said, "Have you got time to build a special machine and put it up?"—"Can you put some men on it," and I had about all of that that I wanted and I told him I could not do it, but I said to him, I will tell you what I would advise,

1944 George Miller is back now and there he is hauling tractors and so forth, and why don't you give him another chance and put him in the experimental department. He gave me at that time two pieces of oscillating mechanism and I took that because I could do the machine work, and within a week Miller was back in the experimental department.

I have seen Miller working on the machine, bolting the parts together, the brake underneath carried the ratchet bar and the shaft mechanism. That was possibly six or seven days after I talked with Mr. Snyder. The one thing that

fixes it so forcibly in my mind is this, that I had a man come to work for me by the name of Sullivan and he came to work as an inspector and he is now an inspector and a timekeeper and he started to work in August of 1920. He came to me several weeks after he started to work there and he wanted my opinion on buying a home in Newton and I told him that I thought it would be a mighty good thing. He wanted to know why and I told him that I 1946
thought we were going to have a boom in the shop. He thought that the shop was going to close up or shut down and I said to him that I knew that there is a new development of an underdrive dolly and I have seen it work and it was described to me as an ocean wave—I did not know what an ocean wave was at that time until yesterday when I seen one—but I know now it is all right and it comes around the top and so forth and I told Mr. Sullivan that Mr. Snyder told me that if he could get the company to put it into production that we would 1947
probably need a shop half as big as Newton to build them. I have been reminded of that by Mr. Sullivan every 3 months since. I have looked up the records and found that he bought his house in November of 1920.

Describing the machine that I saw the last week of May, there was just a disc in there with the three vanes on top, three wooden blocks. I would say that the disc was about a quarter of an inch from the bottom of the machine. We were washing clothes in it. It had—give the clothes a rolling motion.

I saw the machine with the wood pieces on

top wash clothes in the manner described, without the pulling back and forth, in May of 1920.

The Court: What do you say now, what was the motion that you saw?

The Witness: I seen the clothes—I will tell you what I seen—I seen the clothes start from the center of the machine and move outwardly to the side of the tub and then in a vertical position raise up vertically over the top and back down on the bottom.

1949

I asked Mr. Snyder, "Why do you want to fool with this wooden tub?" and Mr. Snyder said, "I will tell you. Aluminum is way up in price, and, we just cannot afford it. If I can get a wood tub out, with a dolly in the bottom, and sell it at a reasonable price, we have got the world beat in washing machines."

About a week after I saw the machine in the experimental department work, along about four

1950 o'clock in the evening, Mr. Snyder came in my department and had a steel disc, flat top, and there was a four-degree angle on the side, and he said, "I want you to help me make a casting, I want to put a new agitator on." So we went over to the aluminum foundry and we made a new style agitator, brought it back, and I machined it and ground it down some and put it in that evening and tried it out. That replaced the old wooden one. That was the first week in June.

Q99. Could you make a little sketch of that particular device that you personally made at that time? A. Yes, sir.

Q100. Will you do it? A. (Complies.)

Q101. Now, will you— A. I want to draw another one. If I am going to make it now, I will make it.

Q102. Will you describe it now that you have drawn it, so we will have it in the record? This I understand is the one made in June. A. First week in June, 1920, that is, this is a complete aluminum casting, 3/16 thick base, the wings are 3—and approximately 4½ inches long, with the hub extending up and below the center section of the casting, four blades. I took my 12-inch scale when we went to the foundry, and I marked it down, and these wings—we had one piece, we had one pattern and forced it down in the sand and made the four parts. That device was used that night in my department, in the wooden tub machine which I have already described.

We made quite a bit of repair parts, parts were brought back from the testing. After the machine had been sent out to Mrs. Ellingsworth, I made a rack bar for it, because it broke.

Mr. Lane: I offer in evidence the sketch made by the witness showing the structure of the first week of June, 1920, as Plaintiff's Exhibit 211.

(Marked Plaintiff's Exhibit 211 in evidence.)

As to what Mr. Snyder did in experimenting between that time and the following year in connection with these structures, I had seen various types of dollies made. I machined, I be-

lieve, every dolly that has ever been made by the Maytag Company. Snyder had everything to do with these dollies that I machined.

The first time I saw anything of the assembled commercial production of this type of machine with the agitator in the bottom, was in 1922.

We started the machine shop in January, 1922, and made the Model 80.

1955 Q117. That is the thing that actually went upon the market? A. We started the machine shop in January, 1922.

Q118. And you made what kind of machine? A. Model 80.

Q119. Have you got one of those here that you can identify that you made about that time? A. I think there is one setting over there. It is the one that has the counter sunk in the bottom.

(Witness leaves the stand and examines several machines and identifies Plaintiff's Exhibit 10—Trial Exhibit 9.)

1956

Mr. Snyder made experimental models every day or every week.

In September, 1921, we changed the style of agitator from them prongs down to a vacuum cup. Well, that is a complete new set-up, which, if you understand machines, you will understand what I mean, we had to pour these vacuum cups on each side, and it is a job to polish them, and I thought I would develop an automatic polishing machine, and Snyder said, "Don't do it. Here is a new one we are going to use." So we never followed up the vacuum cup.

On the last of January, 1922—from this September on, the day we started the vacuum cup, we started to do—getting ready for the polishing of this curved dolly. That was in September, 1921.

From that time on until we went into production, I don't know what Snyder did in the actual operation of those machines. I know what we done. We got ready for this new type agitator.

Cross Examination:

I did not see this machine, Exhibit 172, in operation, with the dolly that is in it now, back in 1919 and 1920, but one like it. I saw one in operation with clothes in it the latter part of—May—about the middle of May, 1920. I would say the middle of May, 1920. When I saw it, they were using it by hand. That night there, when I seen it, it was hand operated. I did not operate it. I watched it. The first time I saw it it was operated by hand. I saw somebody pulling it back and forth by hand. I have seen it operated by hand and by power, both. I did not count the speed of oscillations when somebody was operating it by hand. It was operated at a variety of different speeds that one night. When it was operated that way by hand you could see the water moving out at the bottom, up along the sides, in and down. When we put clothes in it it was being operated by hand, and the clothes took that motion to a certain extent. I thought they followed the course of the water. As well as I could see the clothes

followed the course of the water. At that time the disc had six holes—I have seen it operated with three blades and six blades—narrow blades, high blades, all kinds. When I first saw it operated, it had three blades about an inch and a half high. The exhibit shown me looks very similar to the one I saw. With those three blades on there it was not as good water action as it was the following week, there was some.
1961 In addition to that I would say that there was some water around the tub. The next week there were other blades in it. There were four aluminum blades. I would say they were up to 4¼ inches long and 3¼ inches high. The machine was operated by motor. It had clothes in it. We washed it until we broke the center hub out. We had a ¼-inch key in there connected to the driving shaft. At that time I saw this same turn-over of water, outwardly at the bottom and up at the sides and in at the top and down. This was loads better movement that I had seen
1962 before, very similar movement but more pronounced. More movement, that is the same movement, but at a greater velocity of turnover. We put clothes in and we kept putting them in and running it until the key broke. I do not know how many pounds of clothes we put in.

That machine worked very nice. It had a roll-over—the water had a motion from the center of the machine, outside and then outside, then outward and then it flowed over very similar to what I seen at Coney Island yesterday.

XQ168. Very similar to what you had seen a

1963

week before with the hand-operated machine? A. No.

XQ169. Different in degree but the same motion? A. Yes.

XQ170. And when you were driving it by power, just before the break occurred, could you see any movement of the water enclosed around the tub? A. No, sir.

XQ171. It will not occur? A. Not unless you overload the machine.

1964

XQ172. The water does not move around the tub? A. Oh, yes, there is a left and right-hand motion.

XQ173. Did you see that in 1920? A. Oh, yes.

XQ174. Not very pronounced? A. Oh, it had quite a movement.

XQ175. And you saw it? A. Yes.

XQ176. And the wooden tub with those—that four-bladed agitator, was that the same wooden tub? A. The same wooden tub. And that wooden tub was similar to the one here.

1965

I have seen machines like Plaintiff's Exhibit 169 operated with clothes in very little. I have seen part of a washing started with a machine like that shortly after it was built in 1914, but I do not remember the operation of the washing well enough to testify about it.

(Witness excused.)

Mr. Edmonds: There is one exhibit that I wanted to offer, the one I referred to this morning. I present copies of some papers that were filed by the Plaintiff in the Patent Office and in the course of

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proceedings in the Patent Office, in connection with the grant of the patent in suit. I offered this morning what is known as file wrapper, the file history, but those file wrappers ordinarily do not include proceedings in any interference that the application for the patent was involved here, unless that is especially requested. These papers that I present now are taken from the interference proceeding that the application for the Snyder patent was involved in. They were in evidence in the Brooklyn case as Defendant's Exhibit 147, and I offer them in evidence here under that same number. I may say that their pertinence here is in connection with these six or eight depositions that Mr. Loftus has just offered. These papers are not certified, but certification is waived, I take it.

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(Marked Defendant's Exhibit No. 147.)

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